From Water to Land: Analysis of Prehistoric Shell from Wupatki Pueblo

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ABSTRACT

This thesis examines prehistoric shell artifacts from Ancestral Puebloan, Sinagua, and Hohokam sites. Shell artifacts are good indicators of trade relationships between different cultural groups. Therefore, shells found at Ancestral Puebloan and Sinagua sites shed light onto the trade relationships between the Ancestral Puebloans, Sinagua, and Hohokam. By looking at the shell assemblages from one Ancestral Puebloan site: Wupatki Pueblo; three Sinagua sites: Elden Pueblo, Winona Village, and Ridge Ruin; and two Hohokam sites: Shelltown and the Hind Site, this thesis attempts to determine Hohokam influence on Ancestral Puebloan and Sinagua sites.

This thesis specifically examines prehistoric shell artifacts recovered from excavations at Wupatki Pueblo, an Ancestral Puebloan site located in northern Arizona. The shell artifacts from Wupatki Pueblo were analyzed in order to accurately determine the genus and species, artifact types, and uses of shell. By looking at manufacturing techniques, this research determined if the Hohokam traded or brought shell artifacts to Wupatki Pueblo as finished products or if shell manufacturing occurred at Wupatki Pueblo. To determine the significance of shell artifacts at Wupatki Pueblo, the shell assemblage was compared to shell assemblages from Sinagua sites and Hohokam shell manufacturing sites. Ultimately, this research adds valuable information about trade, migration, and social networks between the Hohokam, Sinagua, and Ancestral Puebloans, which is important to the understandings of function, complexity, ideology, adaptation, resilience, and the foundation of modern Pueblo cultures.

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CHAPTER ONE
INTRODUCTION

This thesis addresses the debate over Hohokam presence and influence at Ancestral Puebloan and Sinagua sites in northern Arizona. By examining shell assemblages from one Ancestral Puebloan site, three Sinagua sites, and two Hohokam shell manufacturing sites, this thesis addresses if there is a Hohokam presence and influence at the Ancestral Puebloan and Sinagua sites. This thesis focuses specifically on Wupatki Pueblo, a Pueblo II to Pueblo III Ancestral Puebloan site. The shell at Wupatki Pueblo is presumed to originate from the Gulf of California and the coast of California. Due to the significant distance from northern Arizona to the Gulf of California or the coast of California, the Hohokam must have traded or carried shells to Wupatki Pueblo. For this reason, shell assemblages from Hohokam sites are compared to Wupatki Pueblo. Shell assemblages from three Sinagua sites are also analyzed for comparative purposes.

The Significance of Prehistoric Shell Trade

In order to understand the significance of Hohokam presence and influence at Ancestral Puebloan and Sinagua sites, one must first understand the significance of prehistoric shell trade. Finding marine shells in non-coastal locations is significant because it indicates trade as well as long distance transportation. Studying marine shell allows archaeologists to trace prehistoric exchange networks (Colton 1941; Fitzgerald et al. 2005). Typically, with prehistoric trade, people exchange non-prestige utilitarian items within a short distance of their occupation area and trade prestige goods, such as shell, amongst different prehistoric groups spanning hundreds of miles (Bayman 1999).

Therefore, trade plays a significant part in the socio-political complexity between and amongst prehistoric groups (Fitzgerald et al. 2005). Also, the presence of a large shell assemblage, such as at Wupatki Pueblo, suggests strong trade relations between Ancestral Puebloans and the Hohokam (Gumerman and Skinner 1968). The Hohokam solidify this by their extensive involvement in shell trade (Hayden 1972).

Research Hypotheses

Throughout this thesis, I will be working off of three hypotheses. I hypothesize that the residents of Wupatki Pueblo were not manufacturing shell objects. I hypothesize that the Hohokam were manufacturing shell objects and trading these objects with the people of Wupatki Pueblo. I also hypothesis that the Sinagua sites used for a comparative study in this thesis will exhibit similar shell assemblages to Wupatki Pueblo due to their close proximity to one another and due to both having trade relationships with the Hohokam.

Sample Description

My data sample consists of six selected sites. The Museum of Northern Arizona and Flagstaff Area National Monuments provided an essential source of shell data from the Ancestral Puebloan site of Wupatki Pueblo. The aforementioned data only includes shell from excavations at Wupatki Pueblo and does not include shell from any other site located in Wupatki National Monument. The Coconino National Forest provided the shell data for one Sinagua site, Elden Pueblo. The work of Tracy L. Murphy in her thesis *Ornamentation and Social Affinity: Shell Ornaments and the Hohokam Influence at Winona Village* (2000) provided the shell data for two Sinagua sites: Ridge Ruin and Winona Village. Lastly, the work of William S. Marmaduke, Richard J. Martynex, and

James Copus in their report *Shelltown and the Hind Site: A Study of Two Hohokam Craftsman Communities* (1993) provided the shell data for two Hohokam shell manufacturing sites: Shelltown and the Hind Site.

Because of the inability to gain physical access to the shell assemblages of Elden Pueblo, Ridge Ruin, Winona Village, Shelltown, and the Hind Site, I only physically analyzed the shell from Wupatki Pueblo. Since I conducted the analysis, I was able to look for Hohokam manufacturing techniques present on the shell. By looking for Hohokam shell manufacturing techniques, I determined if the Hohokam manufactured shell objects to trade with Wupatki Pueblo or if the Ancestral Puebloans of Wupatki Pueblo manufactured their own shell objects.

Theoretical Perspectives

In Chapter 4: Theoretical Perspectives, I discuss the various theoretical models related to prehistoric shell trade. These theories include political economy, prestige model of exchange, and craft economies. I used each theory to determine different aspects of shell trade such as the differences in wealth and power between the people of Wupatki Pueblo.

Prehistoric Shell Data and Methods of Analysis

In Chapter 5: Prehistoric Shell Data and Methods of Analysis, I discuss the methods used to analyze the shell assemblages. This chapter includes a discussion on the shell data and the methods used to analyze the shell data. The methods used for my research are identification, comparison, spatial analysis using Geographic Information System (GIS) and Adobe Illustrator, and data analysis using Statistical Package for the Social Science (SPSS).

Results and Conclusions

In Chapter 6: Results, I discuss the analysis conducted on the shell assemblages. I conducted this analysis in three phases. First, I analyzed the shell from each site to determine genus and species if possible, artifact type, completeness, characteristics, and location. I additionally analyzed the shell from Wupatki Pueblo to identify Hohokam manufacturing techniques. I conducted a spatial analysis on the shell from Wupatki Pueblo to determine discernable consumer patterns and potential elite areas. Second, I analyzed the shell assemblages according to cultural groups: Ancestral Pueblo, Sinagua, and Hohokam. Lastly, I compared the shell assemblage from Wupatki Pueblo to the shell assemblages from the Sinagua and Hohokam sites. The results show that the shell assemblage from Wupatki Pueblo is similar to the shell assemblages from the Sinagua sites. The results also show that the majority of shell from Wupatki Pueblo shows evidence of Hohokam manufacturing techniques and therefore, the Hohokam traded manufactured shell objects to Wupatki Pueblo and that the people of Wupatki Pueblo did not manufacture shell objects. In Chapter 7: Discussion and Conclusions on Archaeological Shell Found at Ancestral Puebloan, Sinagua, and Hohokam Sites, I summarize the results, set out conclusions, and discuss recommendations for future research.

Conclusion

In summary, my thesis focuses on identifying Hohokam presence and influence through shell objects at Ancestral Puebloan and Sinagua sites. I used six sites for my research sample and analyzed these sites to determine shell genus and species, artifact types, completeness, characteristics, location, and Hohokam manufacturing techniques. I compared these sites by cultural group to determine similarities and differences. In conclusion, there is Hohokam presence and influence seen through shell objects at both Ancestral Puebloan and Sinagua sites.

CHAPTER TWO
THE RESEARCH SETTING

In the previous chapter, I gave a general overview of my thesis research. In this chapter, I will discuss the three prehistoric cultures focused on in this thesis: Ancestral Puebloan, Sinagua, and Hohokam. Additionally, I will discuss the six sites studied in this thesis: Wupatki Pueblo, Elden Pueblo, Winona Village, Ridge Ruin, Shelltown, and the Hind Site. I discuss the prehistoric cultures and sites used in this thesis because background information is necessary in order to understand the relevance and importance of my research. I will do so by explaining each prehistoric culture and site individually.

Prehistoric Cultural Groups

This thesis research focuses on three prehistoric cultural groups: the Ancestral Puebloans, Sinagua, and Hohokam. These cultural groups are all located in the southwest of the United States (Figure 2.1). The Ancestral Puebloans were located in modern day Arizona, New Mexico, Colorado, Utah, and Nevada. The Sinagua and Hohokam were located in modern day Arizona.

Ancestral Puebloans. The Ancestral Puebloans were a cultural group located in the northern Southwest from the beginnings of cultivation around 1500 B.C. until the presence of Spanish explorers in A.D. 1540 (Table 2.1). Ancestral Puebloan culture consisted of a high dependence on cultivated food, multi-room and multi-story pueblos, the construction and use of kivas, and distinctive pottery.

The Ancestral Puebloan site in this thesis, Wupatki Pueblo, was a Pueblo II (A.D. 900-1100) to Pueblo III (A.D. 1100-1300) site. During Pueblo II, most of the villages were small and widely dispersed. The most common form of settlement was the unit pueblo, which consisted of masonry rooms placed in an L-shape that abutted each other (Kidder 1962). There would often be a small kiva near the rooms. During Pueblo II, there is generally an absence of subterranean structures, which implies that there was not a great amount of inter-village interaction. Individual settlements appear to be autonomous.

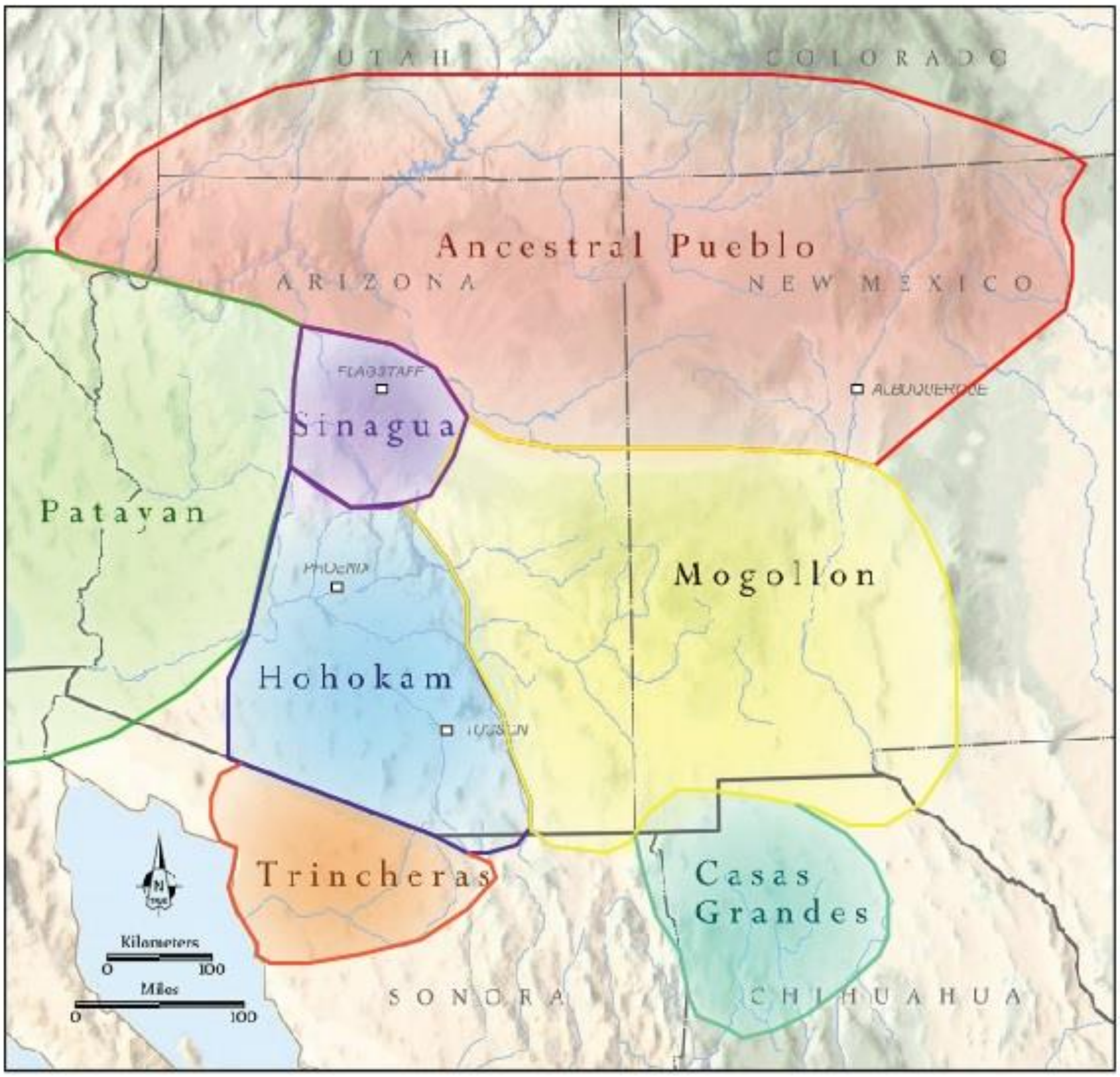


Figure 2.1. Map of prehistoric cultural groups in relation to modern day States (Adapted from Gilman 2016).

Table 2.1. Sinagua and Ancestral Puebloan Chronology (Adapted from Downum 1992; Lipe 1992; Pilles 1996; O’Hara 1998; Murphy 2000).

	Ancestral Pueblo	Northern Sinagua	Southern Sinagua
AD 1400	Pueblo IV	Clear Creek	Tuzigoot
1300	Pueblo III	Turkey Hill	Honanki
1200		Elden	
1100		Angell, Winona, Padre	
1000	Pueblo II	Rio de Flag	Camp Verde
900		Sunset	
800	Pueblo I		Cloverleaf
700		Cinder Park	Hackberry
600	Basketmaker III		
500			
400			
300			Squaw Peak
200		Archaic	
100	Basketmaker II		
AD/BC			
100			Archaic
200 BC			
	Lipe (1992)	Downum (1992)	Pilles (1996)

A new architectural form, known as a field house, appears in Pueblo II. A field house consists of a small room or a few rooms that are occupied seasonally or daily. People used these structures when they tended to their fields (Koehler 1992).

Pueblo II was also the time of the “Chaco Phenomenon” (Irwin-Williams, 1972). Occupation of Chaco Canyon occurred from A.D. 900 to 1150. It was a major cultural center for the Ancestral Puebloans. Chaco Canyon is significant because of turquoise processing; trade of exotic goods such as copper bells, shells, macaws, and cacao (Forton, 2017); large elaborate pueblos; road systems; and astronomical alignments. The Chaco Phenomenon consists of the rise of large architectural complexes, known as Great Houses, in the Chaco Canyon and Aztec areas of northwestern New Mexico (Hurst 2000) and in the San Juan Basin of the southwestern corner of the Colorado Plateau (Forton, 2017). The Chaco Phenomenon can also be seen by building Great Kivas and Great Houses outside of Chaco Canyon, which are known as Chacoan outliers.

The ceramics of Pueblo II consisted of Black-on-white, Black-on-red, and gray wares. The first polychrome ceramic appears at the end of Pueblo II and is characterized by red and orange paint with black designs. The Black-on-white ceramics are generally similar, but have some local variation. The gray ware ceramics change from corrugated neck banding to finely pinched, scalloped designed neck banding to completely corrugated (Kidder 1962).

Pueblo III dates from A.D. 1100 to 1300. Sites become larger and individual masonry rooms become incorporated into one larger structure. The aggregation of rooms becomes quite large and therefore indicates social complexity (Kidder 1962;

Adler 1996). The population of many of the larger sites would comprise of over 1,000 people.

There were new forms of social integration indicated by human burials. Burials now included exotic funerary objects such as shell, which indicated the existence of social hierarchy. Those buried with funerary objects most likely had prestige, high status, and served a number of social roles. They were most likely considered as social elites and would have most likely had religious and social power.

In addition to the building of pueblos, people constructed multi-room and multi-story cliff dwellings (Kidder 1962; Adler 1996). They perhaps served a defensive purpose.

Agricultural strategies develop to using stone features to conserve soil moisture and control surface water runoff. Individual fields are more intensively cultivated which could indicate the need to produce more food for the increase in the size of pueblos and population (Reed 2000).

Ceramic production consists of regional designs which indicates ceramic specialization. The sole purpose of producing some ceramic types was for trade. The gray corrugated ceramics decline in quality. The black-on-white ceramics become more elaborate and finely executed. Polychromes painted in red, orange, white, and black appear towards the end of Pueblo III (Kidder 1962). By the end of the A.D. 1200s, many of the Pueblo III sites are abandoned.

Sinagua. Harold Colton named the Sinagua in the early 1900s. Colton had been documenting a new culture in the Flagstaff region of northern Arizona and decided to call the tradition Sin Agua, which means without water (Colton 1939, 1946). The

Sinagua occupied the northern Southwest from A.D. 700 to 1450 spanning the area between the Little Colorado River to the San Francisco Peaks to the Verde Valley (Downum 1992). The Sinagua consist of two distinct branches: the Northern Sinagua and the Southern Sinagua. The Northern Sinagua are located near modern-day Flagstaff, Arizona. They occupied cinder slopes and Pinyon-Juniper plateaus. The Southern Sinagua occupied the Verde Valley and their remnants are seen clustered around permanent water sources (Pilles 1996). My research concerns the Northern Sinagua, which will be referred to as Sinagua throughout this thesis.

Distinct cultural characteristics define the Sinagua. The presence of Alameda brown ware ceramics distinguishes the Sinagua from other Southwestern cultural groups. These ceramics differed from Tusayan gray wares made by the Ancestral Puebloans and Mogollon brown ware (Colton 1939, 1946; Downum 1992; Plog 1989). Another distinguishing characteristic is that the Sinagua used timber beams to line pithouse interiors and had a distinctive masonry construction of pithouses (Colton 1939).

The Sinagua phases are divided into pre-eruptive and post-eruptive, which refers to before and after the eruption of Sunset Crater Volcano, which occurred around A.D. 1064. After the eruption, there was a shift in the Sinagua culture due to the impacts of the volcano, climate change, and changes in regional interaction (Gruner 2012).

The pre-eruptive period consists of the Cinder Park (A.D. 550 to 850), Sunset (A.D. 850 to 1030), and Rio de Flag (A.D. 1030 to 1085) phases (Ahlstrom and Downum 2014). Slight variations in architecture, material culture, and settlement patterns characterize these phases (Pilles 1979). The pre-eruptive period consisted of residential groups living in clustered or isolated pithouses (Ort et al. 2008). Some large pithouses had kiva-like structures indicating a social, religious, or social and religious organization (Breternitz 1959). The ceramics of the Cinder Park and Sunset phases consisted of local Alameda brown wares and imported Ancestral Puebloan and Cohonina gray wares (Downum 1992). The ceramics of the Rio de Flag phase consisted of the same ceramics as the Cinder Park and Sunset phases except for the addition of Hohokam decorated ceramics (Downum 1988, 1992).

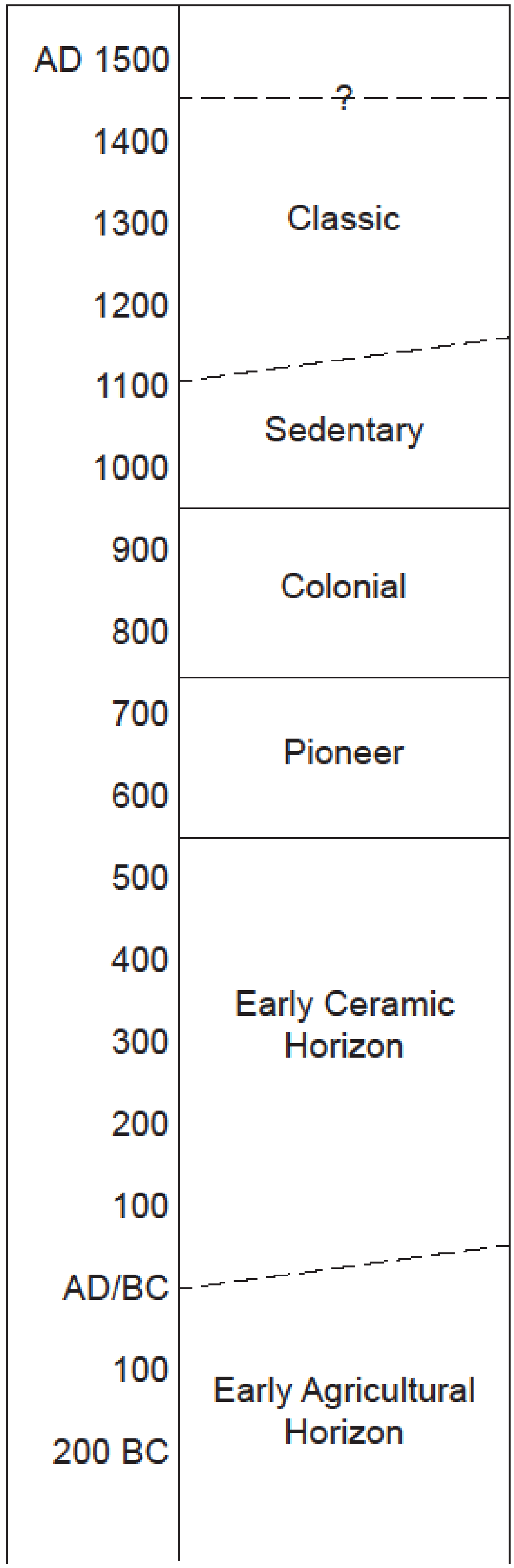
The post-eruptive phases consist of the Angell, Winona, and Padre (A.D. 1090 to 1150), Elden (A.D. 1150 to 1225), Turkey Hill (A.D. 1225 to 1275), and Clear Creek (A.D. 1275 to 1400) phases (Ahlstrom and Downum 2014). The post-eruptive period saw dramatic changes. The post-eruptive phases allowed for arable land due to a thick layer of volcanic “mulch” which prevented evaporation of water in the ground and diverted the water table to areas that were previously not farmable (Gruner 2012). There was an increase in population leading to aggregated communities of pithouses, large settlements, and culturally mixed multi-family pueblos. Check dams, rock outlined fields, and reservoirs made agriculture more intensified (Downum 1988). The post-eruptive phases also exhibited an increase in trade and relations with other cultural groups such as the Mogollon, Ancestral Puebloans, and Hohokam (Murphy 2000).

Most archaeologists agree that during the post-eruptive period, the small to mid-sized pueblos represented family structures. Archaeologists still debate the function of larger sites. Several archaeologists view these larger sites in centralized and densely populated areas to be ceremonial centers or trading centers (Gratz and Pilles 1979; Wilcox 1993, 1994). Other archaeologists suggest that there is not enough evidence to claim that these large structures represent chiefdom level social structure and therefore occupation of these large structures was only sporadic. These sites were more egalitarian than elitist (Kamp and Whittaker 1999).

Hohokam. The Hohokam were a hierarchical cultural group existing from A.D. 300 to A.D. 1450 (Fish 1989; Table 2.2). The Hohokam occupied the Sonoran Desert including the Phoenix Basin along the Gila and Salt Rivers, southern Arizona along the San Pedro and Santa Cruz rivers, and north along the Lower Verde, New, and Agua Fria Rivers. The influences of the Hohokam spread north to Flagstaff, Arizona, east into southwestern New Mexico, and south into northern Sonora, Mexico. The Hohokam created extensive irrigation canals and villages that occupied several hundred people. The Hohokam created monumental public works such as ballcourts and rectangular platform mounds (Kantner 2004). The material culture of the Hohokam consists of red-on-buff ceramics, stone palettes, censors, shell ornaments, platform mounds, ballcourts, and canal irrigation systems (Murphy 2000). The Hohokam traded goods across the Southwest and Mesoamerica such as shell objects, textiles, turquoise objects, copper bells, and pyrite mirrors. Evidence of these traded goods are found at northern Arizona sites, such as Wupatki Pueblo, Elden Pueblo, Winona Village, and Ridge Ruin.

The Hohokam were a craft specialization culture. The Hohokam created shell ornaments that men and women wore in daily life and shell bracelets, rings, beads, pendants, and tinklers that were worn for ritual gatherings and special occasions. *Glycymeris* shell bracelets were worn by the Hohokam to signify being Hohokam. Conch shells were made into trumpets for political and ritual leaders to sound when summoning followers or signaling announcements. During the Preclassic period the

Table 2.2. Hohokam chronology (Adapted from Wallace et al. 1995; Murphy 2000).



Hohokam imported many shell ornaments from Papaguería, which was located near shell sources on the Gulf of California in Sonora, Mexico. During the Classic period, shell jewelry manufacturing in Papaguería declined and the Hohokam living in the Phoenix Basin and Tucson area manufactured the majority of shell products. It is possible that the Hohokam travelled to the ocean to obtain whole shells, but it is more plausible that the Hohokam traded with the people of Papaguería to obtain shells (Bayman 2008).

This thesis includes an analysis of two Hohokam sites: Shelltown and the Hind Site. Occupation at Shelltown occurred from the early to late A.D. 800s and again from A.D. 925 to 1025, during the Colonial and Sedentary periods. Occupation of the Hind Site occurred from A.D. 700 to 800 and again in the middle A.D. 800s, during the Pioneer and Colonial periods. The Ancestral Puebloan and Sinagua sites in this thesis correspond with the Hohokam Sedentary (A.D. 950 to 1100) and Classic (A.D. 1100 to 1450) periods. Although these Hohokam sites are not completely contemporaneous with the Ancestral Puebloan and Sinagua sites, the shell manufacturing techniques, artifact types, and shell genus and species at Shelltown and the Hind Site are still seen in later periods. These sites provide a good reference for Hohokam shell manufacturing techniques that can be seen in later periods and phases. Therefore, I will only discuss the Pioneer, Colonial, Sedentary, and Classic periods of the Hohokam in this thesis.

The Pioneer period dates from A.D. 550 to 750. The Pioneer period consisted of mostly agricultural settlements. The main structures were pithouses located along major rivers. People built irrigation canals and produced red-on-buff pottery (Eighmy and McGuire 1989).

The Colonial period dates from A.D. 750 to 950. During the Colonial period, the Hohokam spread throughout southern Arizona. The villages become larger. The Hohokam built oval-shaped ballcourts. Irrigation networks grew with canals carrying water from rivers to several miles away (Eighmy and McGuire 1989).

The Sedentary period dates from A.D. 950 to 1100. The Sedentary period was the height of occupation for the Hohokam and consisted of the greatest interaction and integration in a regional system (Neily et al. 1999). There is an expansion of existing sites and an increase in the number of sites. Material culture from earlier periods continues and little evidence of new innovation is seen, besides etched shell (Crown 1991). Ceramic technology becomes less refined which is seen by larger pottery and poorly executed design elements (Crown 1991). Burial practices consist of both inhumations and cremations. By the end of the Sedentary period, there is a higher concentration of sites near major river drainages and evidence of abandonment of many sites (Crown 1991).

The Classic period spans A.D. 1100 to 1450. The Classic period shows a shift in cultural developments. The Hohokam no longer build pithouses and instead build above-ground adobe structures in walled compounds. Elites built their residences on platform mounds. People did not build any new ballcourts. Canal systems watered all fields that major rivers could reach (Eighmy and McGuire 1989).

Prehistoric Sites Used in this Research

This research focuses on six archaeological sites: Wupatki Pueblo, Elden Pueblo, Winona Village, Ridge Ruin, Shelltown, and the Hind Site. The sites in this research, respectively, consist of one Ancestral Puebloan site, three Sinagua sites, and two Hohokam sites.

Wupatki Pueblo. Wupatki Pueblo (Figure 2.2) is Pueblo II to Pueblo III site located in northern Arizona, approximately 45 miles from Flagstaff, Arizona (Figure 2.3). Wupatki Pueblo is a 100 room pueblo with an associated ballcourt, blowhole, and community room (Downum 2004). Wupatki Pueblo is built along a sandstone ledge and would have stood at least three stories tall. It consists of at least 70 ground floor rooms and 30 upper floor rooms. Wupatki Pueblo would have had a population of about 120 people (Stanislawski 1963). Wupatki Pueblo was the region's largest and tallest town. It was a cultural center for people in the surrounding areas. It was a trading center, gathering place, landmark, place of sacred ceremony and ritual, and a treasury of exotic goods (Downum et al*.* 2012). Ancestral Puebloans occupied Wupatki Pueblo from A.D. 900 to A.D. 1275, yet occupation of the Wupatki Basin occurred as early as A.D. 550.

Figure 2.2. Wupatki Pueblo South Unit, North Unit, amphitheater, and ballcourt (Image by author 2017).

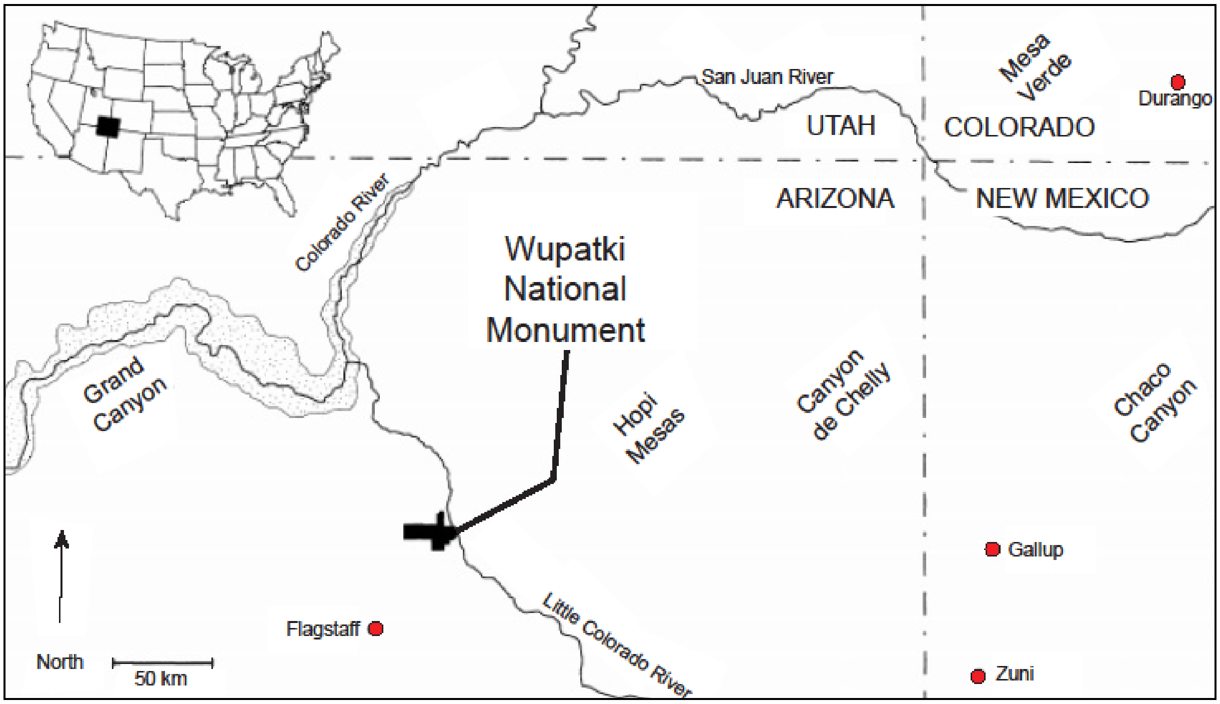


Figure 2.3. Map of Wupatki National Monument in relation to the Southwest (Adapted from Stone and Downum 1999).

Wupatki Pueblo witnessed a population boom in the early 1100s and abandonment occurred in the late 1200s (Downum 2004).

Abandonment of Wupatki Pueblo occurred in part due to a lack of Boserupian intensification. The Boserupian model states that with population pressure, agriculture intensifies, meaning that greater amounts of labor are put into smaller amounts of land per person. Instead, farmers turned to sociopolitical means to protect the land for extensive agricultural use. The reliance on increasing numbers and monumental construction to solidify territorial claims had unintended long-term consequences that led to the abandonment of Wupatki Pueblo (Sullivan and Downum 1991; Stone and Downum 1999).

European-Americans first discovered Wupatki Pueblo in 1851 under the command of Captain Lorenzo Sitgreaves (Downum 2004). Before 1880, the United

States Forest Service built a road in the area of Wupatki Pueblo and visitation to this site significantly increased. In 1889, C. M. Schultz, a sheepherder, lived in Rooms 4 and 7 of Wupatki Pueblo. He cleared out these rooms to provide shelter for himself and his sheep. He built a connecting wall between the lower and upper rooms. Vandalism and pot hunting became a great problem at this time (Stanislawski 1963).

The first documentation of Wupatki Pueblo took place in 1900 by Jesse Walter Fewkes. Fewkes mapped, sketched, described, and potentially excavated portions of Wupatki Pueblo. In 1916, Harold S. Colton and Mary Russell-Ferrell Colton entered Wupatki Pueblo into the site files of the Museum of Northern Arizona. In 1924, Wupatki achieved designation as a National Monument by United States President Calvin Coolidge (Downum 2004). In 1926 and 1927, A. E. Douglass collected wooden beam materials from Wupatki Pueblo for dendrochronology. This information is currently on file at the Laboratory of Tree Ring Research at the University of Arizona in Tucson, Arizona. Additionally, in 1926 and 1927, excavations of Rooms 35, 36, and 45 occurred (Stanislawski 1963).

The Museum of Northern Arizona, under the direction of Lyndon L. Hargrave, conducted the first authorized excavations at Wupatki Pueblo in 1933 (Downum 2004). Archaeologists excavated the amphitheater, 14 rooms at the southeast and southwest end of the pueblo, and Rooms 35, 36, and 44. Briefly after these excavations occurred, Colton restored the amphitheater and the ballcourt, also known as Room 66 (Stanislawski 1963). The National Park Service conducted additional excavations between 1934 and 1952 (Downum 2004) bringing the total number of excavated rooms to 65 (Stanislawski 1963). Archaeologists recovered ceramics, lithics, shell, turquoise, faunal remains, baskets, cloth, bone tools, wood, sandals, vegetal materials, cord, petrified wood, and charcoal from these excavations. Today, The National Park Service still manages Wupatki Pueblo and preservation efforts take place annually.

Elden Pueblo. Elden Pueblo (Figure 2.4) is a Rio de Flag, Padre, and Elden Phase Sinagua site located approximately seven miles north of Flagstaff, Arizona (Figure 2.5). Elden Pueblo dates from A.D. 1070 to 1275. Elden Pueblo is a 65 room, two-story tall pueblo with associated trash mounds, smaller pueblos, a community room, a kiva, and pithouses. Occupation of Elden Pueblo took place after the eruption of Sunset Crater Volcano, which is located just 10 miles east. By A.D. 1100, the Sinagua at Elden Pueblo started to build stone-lined pithouses, pueblos, and masonry structures (Pilles 2009). The pueblos consist of two to three rooms with each room housing a single family. These pueblos later became the center of Elden Pueblo.

Figure 2.4. Overview of a roomblock of Elden Pueblo (Image by author 2017).

By A.D. 1150, Elden Pueblo was an important trade center. The people of Elden Pueblo made plainware pottery, woven cotton textiles, and obsidian projectile points. These were traded with other cultures of the prehistoric Southwest for shell jewelry, turquoise, mineral pigments, argillite, painted ceramics, nose plugs, bird effigy vessels, carved bone hair pins, macaws, and copper bells (Pilles 2009). The presence of rare artifacts such as bird effigy vessels, bone hair pins, nose plugs, and turquoise mosaics in the shape of frogs and birds in flight suggests that Elden Pueblo was a hierarchical society (Pilles 2009).

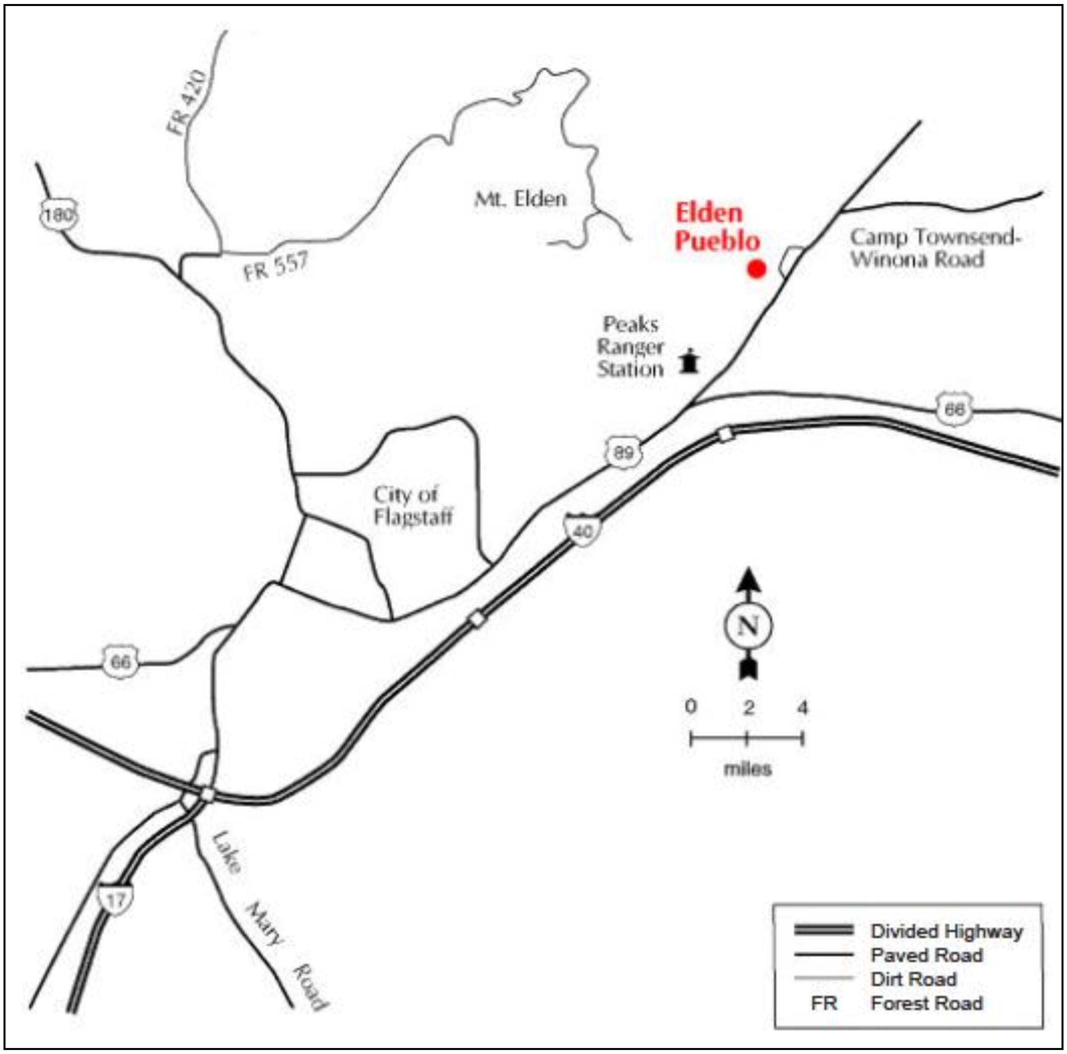


Figure 2.5. Location of Elden Pueblo in relationship to Flagstaff, Arizona (Adapted from Coconino National Forest 2017).

Around A.D. 1250, many people moved to Elden Pueblo because of a drought in the region. A large community room was built in place of the kiva. Continued drought and cooler temperatures did not allow for agriculture and therefore abandonment of Elden Pueblo occurred by A.D. 1275 (Pilles 2009).

In 1916, Harold S. Colton and Mary-Russell Ferrell Colton began an archaeological survey of the Flagstaff area. Mary-Russell Ferrell Colton discovered Elden Pueblo on October 23, 1916 while riding horseback. In 1926, Jesse Walter Fewkes and John P. Harrington of the Smithsonian Institution excavated Elden Pueblo in order to investigate Hopi traditions. Excavations took place in 35 rooms and resulted in uncovering 2,500 artifacts. Fewkes then stabilized Elden Pueblo (Pilles 1991). In 1966 and 1968, Roger Kelly of Northern Arizona University tested several rooms. In 1978, the United States Forest Service considered exchanging the land that Elden Pueblo occupies, but after testing decided against this because much of the site was intact and needed to continue to be preserved. In 1980, archaeologists began to interpret Elden Pueblo through public archaeology (Long 2012). Still today, school groups and the public are able to visit and participate in mock excavations at Elden Pueblo (Long 2012).

Winona Village. Winona Village is a Padre Phase Sinagua site complex located approximately 17 miles northeast of Flagstaff, Arizona near the town of Winona. It is located on the Coconino National Forest. Winona Village consists of a large pithouse village with five main clusters of pithouses, small surface structures, trash mounds, and a ballcourt (McGregor 1937). When John C. McGregor recorded the site in 1935, he identified each cluster as an individual site. McGregor, with the help of the Museum of Northern Arizona and the Arizona State Teachers College (now known as Northern Arizona University), excavated the Winona Village ballcourt and other features in the area. In 1935, archaeologists trenched the ballcourt walls, tested the center, and completely cleaned the ballcourt. The ballcourt was fully excavated from 1936 to 1937. Stratified sequential removal of 1 meter x 0.5 meter x 0.5 meter units occurred to allow for detailed recording of the ceramic sequence. Archaeologists screened the excavated soils for artifacts. The ballcourt was determined to be Hohokam in style. The Works Progress Administration conducted additional excavations at Winona Village in 1938 and 1939 using the same excavation techniques as McGregor (Murphy 2000). The additional excavations showed additional Hohokam influence at Winona Village through a pithouse with Hohokam-style architecture, red-on-buff ceramics, cremation burials, and shell ornaments.

This thesis focuses on six sites from the Winona Village site complex: NA2131, NA2132, NA2133, NA2134, NA2135, and NA3644. NA2131 consists of one pithouse (K), a three room masonry pueblo (A), and an associated trash mound (X). It is located approximately 230 meters from the ballcourt at Winona Village (NA2132). Archaeologists excavated the pithouse and pueblo and also tested and trenched the trash mound. The pithouse and trash mound dates are contemporaneous and date earlier than the pueblo (McGregor 1941).

NA2132 is the ballcourt at Winona Village. It perhaps served a ritual function or as a trade center (Nelson 1991; Wilcox 1993; Wilcox and Sternberg 1983). No shell was recovered from excavations of the ballcourt, but it is interesting to note due to its Hohokam style.

NA2133 consists of a cluster of sites with known Hohokam traits (Murphy 2000). NA2133 is located approximately 280 meters from the ballcourt at Winona Village.

NA2133A is known as “Hohokam House” because its features are representative of a Sedentary Hohokam pithouse (McGregor 1941; O’Hara 1998). The pithouse is deep with parallel sides, rounded corners, and an alcove on the east side. Support posts were positioned in a straight line on the central long axis with additional posts around the floor margin (McGregor 1941). NA2133A is almost identical to excavated pithouses at Snaketown. This pithouse and a pithouse at Turkey Tanks Pithouses (NA2098) are the only Sedentary Hohokam style pithouses found in the Flagstaff region (McGregor 1941). Not only is the architecture Hohokam in style, but also Hohokam style ceramics such as Coconino red-on-buff and Winona red-on-buff were found at NA2133A (McGregor 1941; O’Hara 1998). NA2133B is an excavated surface structure located south of NA2133A. It is associated with NA2133A and did not contain any shell artifacts (Murphy 2000). NA2133C is an excavated pithouse with Hohokam features such as curved corners and a ramped entrance (McGregor 1941). NA2133E is also an excavated pithouse. NA2133T is the trash slope associated with the pithouses of NA2133 (Murphy 2000).

NA2134 consists of two excavated pithouses (A and E), a cremation area (X), and a trenched trash mound (McGregor 1941). The site is located approximately 230 meters from the ballcourt at Winona Village.

NA2135 consists of three excavated pithouses (A, B, and C) and one tested pit depression (D) (McGregor 1941). The site is located 460 meters from the ballcourt at Winona Village. Pithouse C shows evidence of burning during occupation (Murphy 2000).

NA3644 consists of nine excavated pithouses (A, C, H, J, K, M, P, and Q), one tested pit depression (R), three trenched trash mounds (D, I, and O), and one tested and trenched trash mound (B) (McGregor, 1941). The site is clustered into two groups: north and south. The north group consists of features H, I, L, M, O, P, Q, and R. The south group consists of A, B, C, D, J, and K. NA3644 is located approximately 350 meters from the ballcourt at Winona Village (Murphy 2000).

Ridge Ruin. Ridge Ruin is a Padre through Elden phases Sinagua site complex located approximately 20 miles east of Flagstaff, Arizona on the Coconino National Forest (Figure 2.6). Ridge Ruin (NA3669) is a masonry pueblo with approximately 20 to

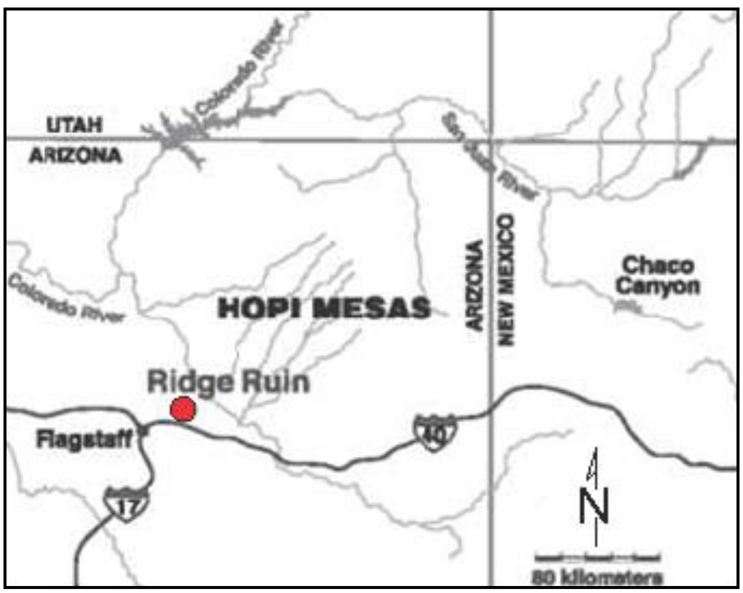


Figure 2.6. Map of Ridge Ruin in relation to Flagstaff, Arizona (Adapted from O'Hara 2006).

25 rooms. Many of the rooms were two stories tall. The walls were made of sandstone blocks and basalt boulders. Ridge Ruin also consists of a raised platform, rock enclosures, and plazas. Archaeologists discovered an elaborate burial, the Magician's Burial, to the north of the main pueblo in a potential kiva (McGregor 1943). The burial

contained over 600 objects including macaw skeletons, painted sticks, ceramics, lithics, painted basketry, shell, animal parts, rare stones, and mineral pigments (Gruner 2012).

Excavations of Ridge Ruin occurred in 1939 by the Museum of Northern Arizona with a grant from the Works Projects Administration (McGregor 1941). Archaeologists completely excavated three rooms. Additional testing transpired along the walls, down to the floors, and to the tops of the remaining room walls. The ballcourt and trash mounds were also tested.

I do not specifically discuss Ridge Ruin in this thesis, but I do discuss four sites in the Ridge Ruin complex: NA1785, NA3673, NA3676, and NA3680. NA1785 is a pueblo of less than 20 rooms. It is located 170 meters east of the ballcourt at Ridge Ruin (Murphy 2000). NA3673 is a completely excavated pithouse located below a trash mound (NA2673T). It is located approximately 90 meters from the east ballcourt at Ridge Ruin (Murphy 2000). NA3676 is a tested trash mound located about 400 meters from the east ballcourt at Ridge Ruin and NA3680 is a single tested pithouse covered by a trash slope (Murphy 2000).

Shelltown. Shelltown is a Colonial and Sedentary period Hohokam shell manufacturing site. Shelltown dates to the early to late A.D. 800s and from A.D. 925 to 1025. Shelltown is located approximately 25 miles southwest of Casa Grande, Arizona (Figure 2.7). It is located near Interstate Highway 8 which runs west from north of Tucson towards San Diego, California. Shelltown sits at the lower slope of Table Top Mountain and is on the west side of Santa Rosa Wash. Shelltown covers approximately 178 acres. Shelltown consists of small, sparse, and widely separated clusters of structures. Initial occupation occurred by a few extended families at one time, but later grew to the size of a small village.

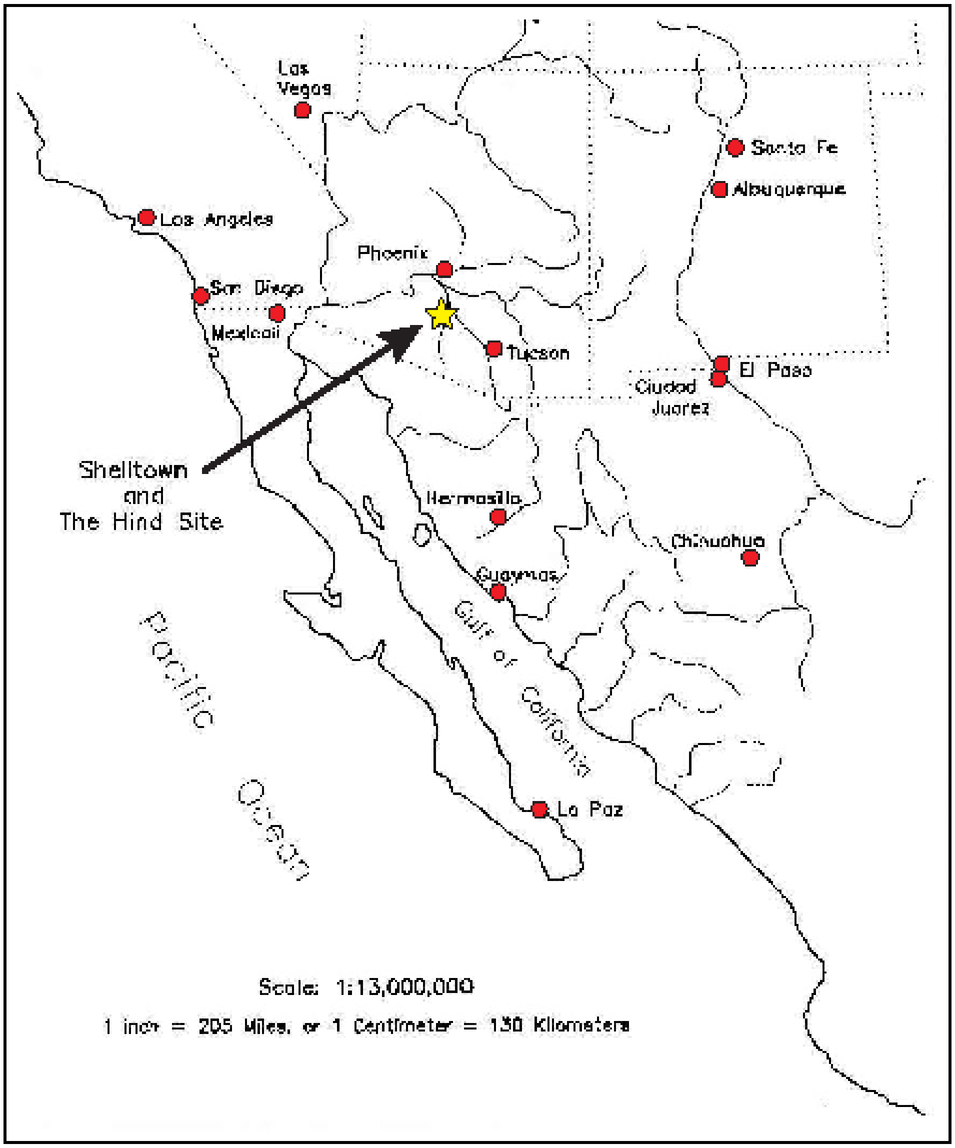


Figure 2.7. Map of Shelltown and the Hind Site in relation to the greater Southwest (Adapted from Marmaduke et al. 1993).

Shelltown is significant because it was a specialized site of shell manufacturing. Archaeologists found over 36 separate species of marine shell from both the Gulf of California and Pacific coast. Additionally, archaeologists discovered mosaic inlays and pendants of turquoise, pyrite, muscovite, galena, and copper ores; beads and pendants of slate, schist, and quartz crystal; shell ornaments; shell manufacturing tools; and shell manufacturing debris (Marmaduke et al. 1993). The most prominent artifacts found at Shelltown are shell objects and Gila Butte red-on-buff ceramics (Marmaduke 1993).

The U.S. Department of the Interior, Bureau of Reclamation contracted Northland Research, Inc. to survey for archaeological sites before the construction of the Central Arizona Project, which brought water from the Colorado River in western Arizona to central Arizona. Survey of the area for the Santa Rosa Canal began in 1984. Phase A survey occurred in the eastern portion of the survey area and Phase B occurred in the western portion. Shelltown was found during the Phase B survey. Archaeologists test excavated Shelltown from the spring of 1985 to the spring of 1986. During the early stages of excavations at Shelltown, vandalism and looting transpired causing a loss of several shell caches and a reconstructible vessel. Therefore, Northland Research, Inc. hired a security guard to deter future looters. Poor weather conditions from monsoons also negatively affected the site and caused data loss (Marmaduke et al. 1993).

Archaeologists systematically sample surveyed Shelltown using 20 meter transects allowing for 96 percent of the total site area to be surveyed (Marmaduke et al. 1993). Shelltown was designated into loci. Locus 1, 2, and 3 were located near the right-of-way of the Santa Rosa Canal. These loci were contemporaneous to the Hind Site. These loci included more than 50 features of which 20 were structures. Archaeologists excavated all of the structures in these loci that were located during trenching. Loci 4 was located near a separate distribution canal that extended off the Santa Rosa Canal. Locus 4 did not contain any features, but had a significant amount of Sacaton red-on-buff ceramics and a small amount of Santa Cruz red-on-buff ceramics.

Additionally, Locus 5 through 11 were determined, but were not fully researched (Marmaduke et al. 1993).

The Hind Site. The Hind Site is a Pioneer and Colonial period Hohokam shell manufacturing site. Occupation of the Hind Site occurred from A.D. 700 to 800 and again in the mid A.D. 800s. The Hind Site is located approximately 25 miles southwest of Casa Grande, Arizona. It is located three kilometers south/southeast of Shelltown. Interstate Highway 8, which runs west towards San Diego, California, divides the Hind Site and Shelltown. Like Shelltown, the Hind Site is also located at the lower slope of Table Top Mountain and to the west of Santa Rosa Wash. The Hind Site covers approximately 20 acres. Occupation of the Hind Site was by only a few extended families at any one time. The Hind Site, like Shelltown, was also significant because it was a shell manufacturing site and therefore showed craft specialization. The same species of marine shell and artifacts were found at both the Hind Site and Shelltown (Marmaduke et al. 1993). The Hind Site consists of a tight cluster of more than 100 features including 34 houses and other structures. The most prevalent artifacts at the Hind Site are shell objects and Gila red-on-buff ceramics (Marmaduke 1993).

The Hind Site was located on the same project as Shelltown. Like Shelltown, archaeologists found the Hind Site during the Phase B survey. Test excavations occurred at the Hind Site from the spring of 1985 to the spring of 1986. A severe summer monsoon negatively impacted the final days of excavation at the Hind Site by washing out numerous exposed features and walls of exploratory trenches. Archaeologists sampled the Hind Site using machine excavated trenches (Marmaduke et al. 1993). They did not excavate all of the habitation area.

The Hind Site was divided into four loci. Locus 1 and 2 made up the eastern half of the site core. Locus 1 consisted of everything north of an east/west line that connected with the northern boundary of the cemetery. Locus 2 consisted of everything south of this line and included the cemetery. Locus 3 consisted of the northern part of the western site core and Locus 4 consisted of the southern part of the western site core (Marmaduke 1993).

Conclusion

This chapter discussed the prehistoric cultures and sites used in this thesis. This information is necessary in order to understand the context, relevance, and importance of my thesis research in relation to research on prehistoric marine shell in the Southwest. In the following chapter, I will discuss how the Ancestral Puebloan and Sinagua sites used in this thesis were influenced by the Hohokam through migration, trade, and style. I will also discuss prehistoric shell trade, shell manufacturing, and shell uses.

CHAPTER THREE
PREHISTORIC SHELL AND PREHISTORIC SHELL TRADE

Prehistoric peoples used shell in a variety of ways. People modified and transformed shell into jewelry and ornamentation to show prestige, wealth, esteem, and decoration. Shell had symbolic meaning by signifying the need for water. In order to understand the importance of shell, the anatomy of shells and the types of shells used by prehistoric peoples must be understood.

Anatomy of Shells

Shells are the hard protective outer case of soft-bodied land, sea, and fresh water creatures. Shells consist of the phylum *Mollusca*, which includes five classes: Amphineura, Scaphaopda, Pelecypoda, Gastropoda, and Cephalopoda. Under each of these five classes are Orders, Families, Genera, Species, and Subspecies (Schinsing 2012). This thesis mainly focuses on the Pelecypoda, which I will refer to as Bivalves, and Gastropoda, which I will refer to as Gastropods.

Bivalves. Bivalves are two shelled organisms (Figure 3.1). In Bivalves, two shells link at a hinge. Bivalves have primitive nervous systems and are headless (Keen 1971). The most common Bivalves found in archaeological contexts in the Southwest are *Glycymeris*, *Laevicardium*, and *Spondylus*.

Gastropods. Gastropods have a whorled pattern in and on the shell (Schinsing 2012; Figure 3.2), which is formed by torsion, a biological process that consists of spontaneous twisting of the visceral hump during larval development (Keen 1971). The

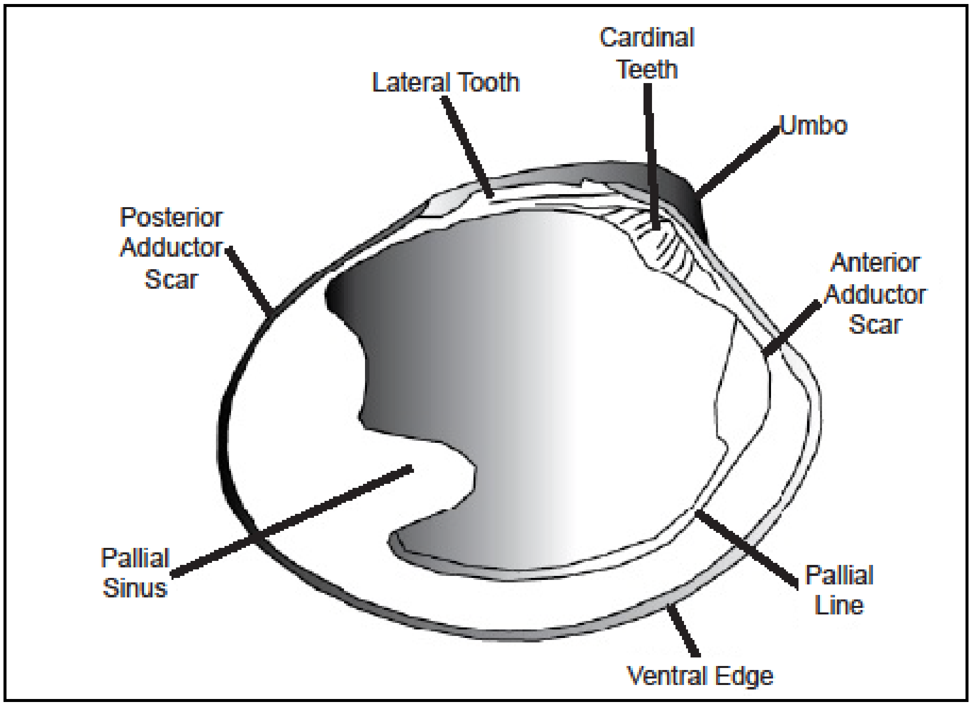


Figure 3.1. The physical anatomy of Bivalves (Adapted from Abbott and Dance 1982; Schinsing 2012).

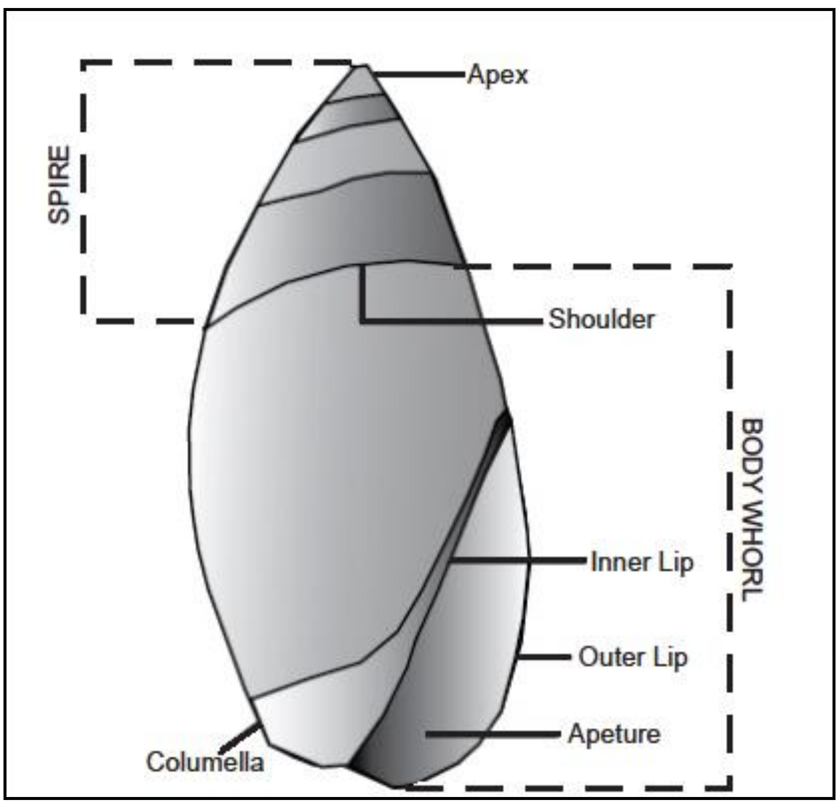


Figure 3.2. The physical anatomy of a Gastropod (Adapted from Schinsing 2012).

most common Gastropods found in archaeological contexts in the Southwest are *Olivella* and *Conus*.

Prehistoric Shells in this Thesis

A variety of shells can be found throughout the prehistoric Southwest. The most common shells recovered from archaeological contexts in the Southwest are *Glycymeris* and *Olivella*. In this section, I discuss the shells used in this thesis according to their classifications as either Bivalves or Gastropods. Additionally, I discuss a third classification: *Dentalium*.

Bivalves. The Bivalves found at archaeological sites examined in this thesis are *Glycymeris*, *Chama*, *Dosinia*, *Chione*, *Codakia*, *Cardita*, *Laevicardium*, *Cardium*, *Trachycardium*, *Haliotis*, *Pinctada*, *Pteria*, *Megapitaria*, *Spondylus*, *Ostrea*, *Pecten*, *Argopecten*, and *Anodonta*. The Bivalves consist of marine clam shells, egg cockles, oyster shells, scallop shells, and one freshwater mussel shell.

Glycymeris, *Chama*, *Dosinia*, *Chione*, *Codakia*, and *Cardita* are saltwater clam shells. *Glycymeris* are obtained from the coast of California and the Gulf of California (Vokes 2006). They can be up to 10 centimeters large or relatively small (Figure 3.3). *Chama* is a spiny clam shell located from the Gulf of California (Vokes 2006). It ranges in color from white to coral to purple (Keen 1958). *Dosinia* is disc-like in shape and typically white in color. *Dosinia* originates from the Gulf of California (Vokes 2006). *Chione*, *Codakia*, *Megapitaria*, and *Cardita* are medium sized clams. *Chione* originates from the coast of California, Gulf of California, and Gulf of Mexico (Vokes 2006). *Codakia* and *Cardita* are found at the coast of California and the Gulf of California. *Megapitaria* originates from the Gulf of California (Vokes 2006).

Figure 3.3. Modern day *Glycymeris* shell and *Glycymeris* bracelets from Wupatki Pueblo (Image courtesy of Ryan Belnap and Dan Boone).

Laevicardium, *Cardium*, and *Trachycardium* are all egg cockles, also known as saltwater clams. *Laevicardium* originates from the coast of California and the Gulf of California (Vokes 2006). *Cardium* is a rounded cockle that is heart-shaped and symmetrical. They have numerous radial ribs. *Trachycardium* is found along the Gulf of California (Vokes 2006). They can grow to be up to 99 millimeters long. They are oblong to round in shape. They exhibit ribs that run from the umbo (Keen 1958).

Haliotis, *Pinctada*, *Pteria*, *Spondylus*, and *Ostrea* are all oyster shells. *Haliotis* is found along the coast of California (Dall 1921; Vokes 2006). Its inside surfaces are composed of nacre which gives the inside of the shell iridescence (Figure 3.4). It has a low, open, spiral structure with respiratory pores near the outer edge of the shell. *Pinctada* is the shell of a pearl oyster. The shell has a strong inner layer composed of

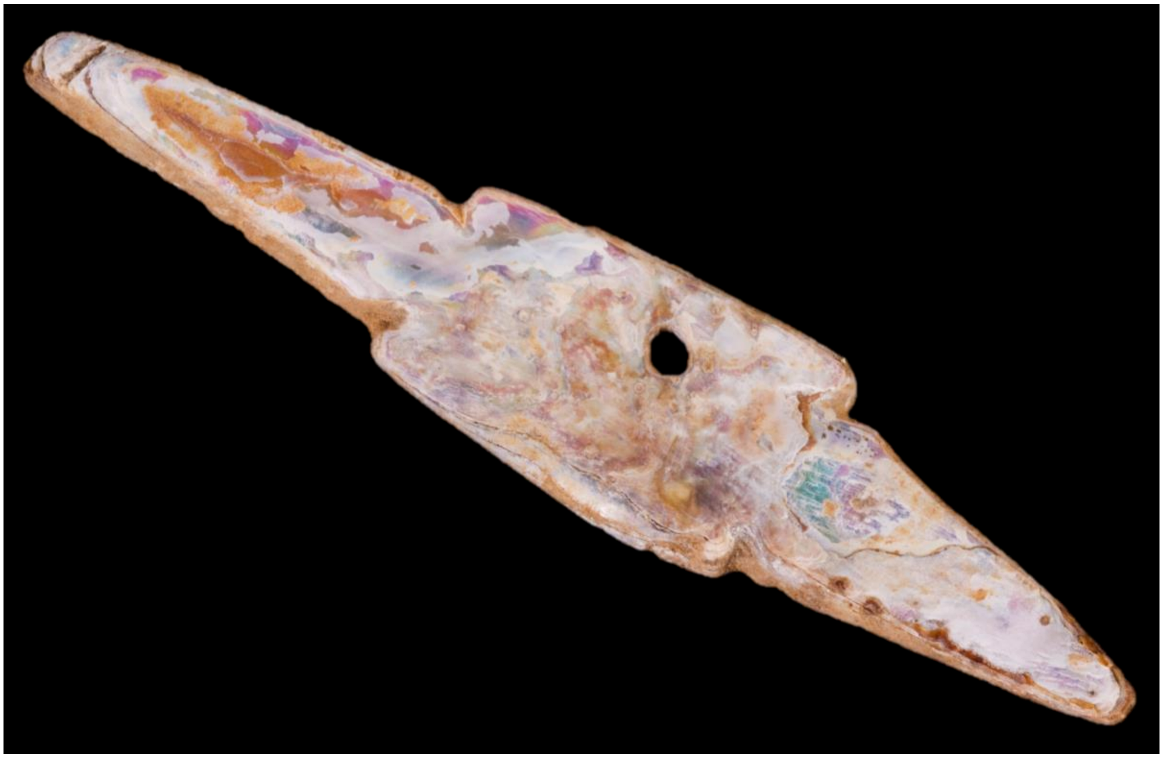


Figure 3.4. WUPA 2543 *Haliotis* flying bird pendant from Wupatki Pueblo (Image courtesy of Ryan Belnap and Dan Boone).

nacre. It originates from the coast of California and Gulf of California (Vokes 2006). *Pteria* is often referred to as a winged oyster. It originates from the coast of California and the Gulf California (Vokes 2006). Like *Pinctada* and *Haliotis*, *Pteria* also has an inside surface composed of nacre. *Spondylus* shells are found from the Gulf of California (Vokes 2006). *Spondylus* have a coarse body and spines (Keen 1958). They are found in vibrant colors ranging from white, pink, orange, and purple (Figure 3.5). *Ostrea* are found on the coast of California.

Pecten and *Argopecten circularis* are scallop shells. *Pecten* is obtained from the Gulf of California (Vokes 2006). *Pecten* has one valve that is convex and one valve that is slightly concave or flat (Jernigan 1978). *Argopecten* is found in the Gulf of California (Vokes 2006). Its appearance is speckled.

Figure 3.5. WUPA 440 *Spondylus* disc beads strung as a necklace from Wupatki Pueblo (Image courtesy of Ryan Belnap and Dan Boone).

In addition to marine Bivalves, one fresh water bivalve, *Anodonta*, has been found in archaeological contexts in the Southwest. *Anodonta* is a freshwater mussel shell found in rivers.

Gastropods. The Gastropods found at archaeological sites used in this thesis are *Olivella*, *Conus*, *Nassarius*, *Columbella*, *Anachis*, *Turritella*, *Cerithidea*, *Strombus*, *Melongena*, *Murex*, *Oliva*, *Nerita*, *Neritina*, *Pyrene*, *Trivia*, *Naticidae*, *Vermetus*, *Theodoxus*, and *Oreohelix*. They consist of marine snail shells, one fresh water snail shell, and one land snail shell.

Olivella, *Conus*, *Nassarius*, *Columbella*, *Anachis*, *Turritella*, *Cerithidea*, *Strombus*, *Melongena*, *Murex*, *Oliva*, *Nerita*, *Neritina*, *Pyrene*, *Trivia*, *Naticidae*, and *Vermetus* are all marine snail shells. Since it is difficult to discern the different species of *Olivella* without additional testing, I will only discuss *Olivella* as a genus. *Olivella* shells are obtained from the Gulf of California (Jernigan 1978; Vokes 2006). *Olivella* are generally ovate in shape (Figure 3.6). The length of the spires in *Olivella* varies by species (Jardine 2007).

Figure 3.6. *Olivella* beads strung on a necklace from Wupatki Pueblo and modern day *Olivella* shell (Image courtesy of Ryan Belnap and Dan Boone).

Conus originate from the Gulf of California (Vokes 2006). They are relatively small and measure up to 26 millimeters long (Figure 3.7). Their features consist of stripes and blotches around the body (Keen 1958). Also known as mud snails,

Figure 3.7. WUPA 8309 *Conus* tinkler from Wupatki Pueblo and modern day *Conus* shell (Image courtesy of Ryan Belnap and Dan Boone).

Figure 3.8. *Turritella* pendant from Wupatki Pueblo and modern day *Turritella* shell (Image courtesy of Ryan Belnap and Dan Boone).

Nassarius have a conical shape with convex sides and a siphonal notch. *Columbella* and *Anachis* are also known as dove snails. They originate from the Gulf of California (Vokes 2006). *Turritella* is a long spiral univalve (Figure 3.8). *Turritella* have an operculum, which is an anatomical structure that acts as a trapdoor. *Turritella* originate from the Gulf of California (Vokes 2006). *Cerithidea* is also a long spiral univalve similar to *Turritella*, but it is smaller than *Turritella*. Like *Turritella*, *Cerithidea* also originates from the Gulf of California (Vokes 2006).

Strombus, also known as a conch shell, is a large shell found from the Gulf of California (Vokes 2006). *Strombus* have a stromboid notch, which is a flaring outer lip with an anterior notch. This allows the snail to protrude its stalked eyes through the stromboid notch. Prehistoric peoples often used *Strombus* as musical instruments. *Strombus* shells were often used as trumpets to summon horned serpents that lived in water and controlled snow, rain, and the flow of water (Crown 1994). *Melongena* is similar to *Strombus* in that it is also a conch shell. Prehistoric people also played *Melongena* as musical instruments. *Melongena* originates along the coast of California. *Murex*, also known as a rock snail, is found in intertidal or shallow subtidal zones, typically amongst corals and rocks. The exterior of the shell has spines and the interior is often brightly colored. *Murex* is similar to both *Strombus* and *Melongena* as prehistoric people also used it as a musical instrument.

Oliva originates on the coast of California. *Oliva* are medium to large sized and can grow up to 55 millimeters in length (Keen 1958). *Nerita* and *Neritina* are small to medium sized shells found in intertidal zones. P*yrene* are small shells. *Trivia*, also known as cowries, are also small shells. Although *Trivia* are not true cowries, they are closely related and resemble the form of cowries. *Naticidae*, also known as the moon snail or necklace shell, are found worldwide. *Vermetus* is also considered a snail even though it is more like a marine worm. It produces a calcareous tube that it lives in.

In addition to marine Gastropods, one fresh water Gastropod has been found in archaeological contexts in the Southwest. *Theodoxus* is a freshwater snail shell found in both freshwater and brackish water. *Theodoxus* originates in temperate climates. They are semi-ovular with a flat apertural plain.

In the shell assemblages analyzed, there was also the presence of one air-breathing land snail. *Oreohelix* is a terrestrial pulmonate Gastropod. They are native to the western United States, specifically the Great Basin, Rocky Mountains, and Southwest.

Scaphopods. In addition to Bivalves and Gastropods, there was one Scaphopod belonging to the class Scaphopoda. *Dentalium*, also known as a tusk or tooth shell, is an infaunal marine mollusk. It ranges in size from 0.5 to 15 centimeters. It lives in soft substrates offshore. The shell tapers uniformly from the anterior to the posterior.

Importance of Shell

Shell was important to prehistoric peoples because it showed power, esteem, and security through wealth. Shell jewelry was a physical sign of wealth. By wearing shell jewelry as an individual, wealth was visible to all other members of society (Jernigan 1978). Additionally, wearing jewelry made a person more attractive (Jernigan 1978).

Shell is also important because it can be viewed as an inalienable object (Mills 2004). Inalienable objects rarely circulate or do not circulate widely. When people exchange objects, the exchange takes place within socially proscribed networks. Inalienable objects are not subject to mundane exchange transactions. Inalienable objects are repositories of knowledge. Inalienable objects require special knowledge to produce. People passed down knowledge of how to make these objects through specific chains or links between individuals. Only certain people had the knowledge or right to make or own inalienable objects because of the positions they held. The production of inalienable objects is usually highly gendered. Inalienable objects are often singularities meaning they are not produced in large quantities. Although, they may be produced in large quantities if it is necessary for each member of a group to use an inalienable object, such as Hohokam bracelets. People used inalienable objects in ceremonies of authentication and commemoration. Inalienable objects provide insight into how people used ritual objects to confer prestige without being part of a prestige goods economy. They are used to authenticate individual as well as collective identities. Inalienable objects are important for both the establishment and defeat of hierarchy (Mills 2004). The idea of inalienable objects suggests that there was not elite manipulation of exotic goods, but rather that people passed down exotic goods from generation to generation.

The importance of shell can also be seen in modern day Native American tribes. Lyle Balenquah (2013), a member of the Hopi tribe, states that marine shell has many symbolic traits. Shell tinklers were tied together and worn in order to make noise. Since water is scarce in the Southwest, the sound of shells rattling together is a way to summon rain. The sound of shells rattling together is also a metaphorical connection to wanting or needing water. Shells carved into frogs also indicate the importance of the connection to water (Balenquah 2013).

Hohokam Shell Manufacturing

Shell manufacturing consists of the modification of raw shell. The modification can happen due to grinding, perforation, etching, painting, or overlay. The modification allows people to transform raw shell into beads, pendants, tinklers, bracelets, rings, and mosaics. The Hohokam were experts at making shells into jewelry and other craft items and therefore manufactured a great majority of the shell objects in the prehistoric Southwest. Additionally, the Hohokam traded these shell objects with other cultures such as the Ancestral Puebloans and Sinagua.

The Hohokam not only acquired whole shells from the coast of California, Gulf of California, and Gulf of Mexico, but also manufactured the shells into objects. The Hohokam either kept these shell objects for personal use or traded these objects to other cultures such as the Ancestral Puebloans and Sinagua. The Hohokam made a variety of different objects from shell such as beads, pendants, bracelets, rings, necklaces, etched shell, and mosaic overlaid shell.

Beads. The Hohokam manufactured a variety of beads. Small beads were typically not decorated while large cylindrical beads show evidence of decoration. Large cylindrical beads are decorated either longitudinally or in encircling grooves (Jernigan 1978). People most frequently manufactured shaped beads. Shaped beads consist of disc, tubular, lenticular, rectangular, bilobed, tapered, side-drilled, oculate, ring, saucer, claw, lump, square, oval, and prism.

The most prevalent beads are disc beads. Round disc beads have a rectangular cross section. They are characteristic of the Southwest as they are found at Hohokam, Mogollon, and Ancestral Puebloan sites. They are typically small, but some can be as large as ¾ of an inch in diameter. For the Hohokam, disc beads exist from the Pioneer period to the Classic period. There is a significant increase in production of disc beads during the Colonial period. It is thought that disc beads were mass produced, yet each bead had to be drilled individually (Jernigan 1978). It is difficult to determine what shell species were used for making shell disc beads. Most likely they were of the large valve of *Laevicardium*. *Glycymeris* was used to make larger disc beads. *Spondylus* was also used to make disc beads and can typically be identified by its purple or pinkish red color (Figure 3.9). Typically, disc beads have small perforations. During the Sedentary period, the Hohokam created disc beads with larger perforations, but the trend never really caught on (Jernigan 1978). The Hohokam would wear disc beads in long strings as necklaces. The strings would form either one or two loops that would hang down to the breastbone or tight around the neck like a choker. Later on, from the Sedentary to Classic periods, the number of strands in disc bead necklaces increases and people wore more necklaces at the same time (Jernigan 1978).

Cylindrical beads consist of beads where the length is longer than the diameter. These beads are formed in the same way as disc beads. Drilling for cylindrical beads was much more difficult than for disc beads. Cylindrical beads were most common during the late Colonial and Sedentary periods (Jernigan 1978).

Shell beads could be manufactured in a bilobed or figure-eight shape (Figure 3.10). They were first found in the late Colonial period. This bead was typically flat-

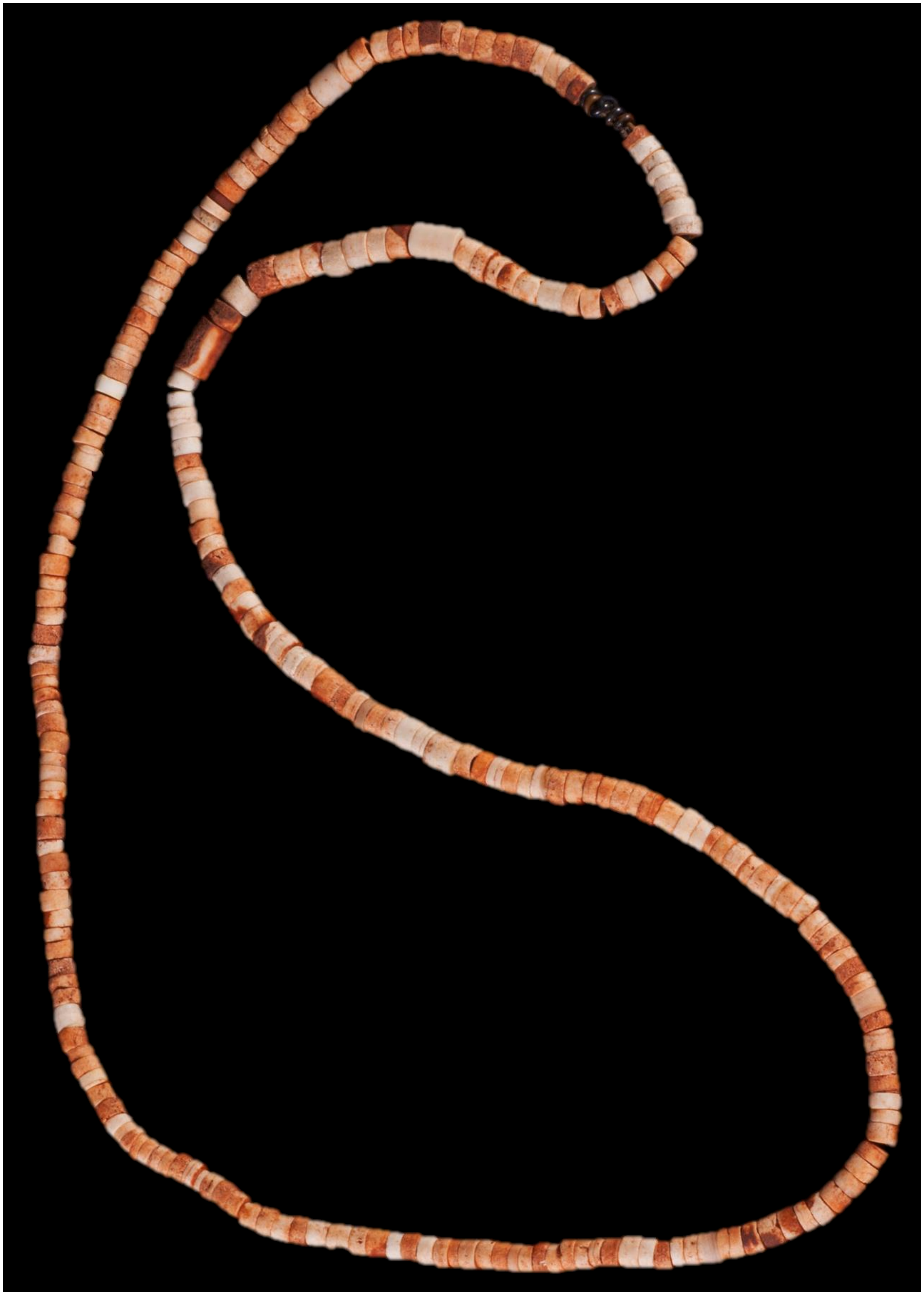


Figure 3.9. WUPA 1382 *Spondylus* disc bead necklace from Wupatki Pueblo (Image courtesy of Ryan Belnap and Dan Boone).

Figure 3.10. WUPA 8081 unknown species bilobed bead from Wupatki Pueblo.

faced. Bilobed beads were typically used in intervals in necklaces or bracelets of disc beads (Jernigan 1978).

Additionally, people manufactured shell beads in the shape of a saucer using the spires and walls of univalves, such as from *Olivella*. These beads are not common. They are present during the Colonial period to the Classic period (Jernigan 1978).

Lump and claw or tooth shaped beads are typically made out of *Spondylus* or worm-eaten shell. Due to the irregular shape of *Spondylus*, people smoothed these beads into a lump shape or worked these beads into a claw or tooth shape. These beads were most likely used in the same way as bilobed beads where they would be found in intervals in necklaces (Jernigan 1978).

The Hohokam also made whole shell beads (Figure 3.11). These were mostly made out of *Olivella*. *Olivella* beads are first found in the Pioneer period and continue until the Classic period. The most common form of *Olivella* bead is when the spire end was ground away which allowed for the beads to be strung. Sometimes, both the spire end and the aperture end would be ground and formed into a barrel bead (Jernigan 1978). People also used *Nassarius* and *Columbella* for whole beads. *Nassarius* is found in the Classic period and *Columbella* is found in the Sedentary period. *Nassarius* were used in anklets and bracelets (Jernigan 1978).

Figure 3.11. WUPA 8201 whole *Glycymeris* beads from Wupatki Pueblo (Image courtesy of Ryan Belnap and Dan Boone).

Pendants. Another shell object manufactured by the Hohokam are pendants. Bead or tab pendants consist of tabular pieces of shell that are about an inch in length.

These pendants are typically trapezoidal, oval, or rectangular in shape. Tab pendants appear first with the Mogollon and Ancestral Puebloans and then with the Hohokam. Bead pendants appear through the Sedentary to Classic periods. They are incorporated into necklaces, bracelets, and ear pendants. The shell pendants are typically in simple forms with the ridges of the shell still intact (Jernigan 1978).

The Hohokam manufactured whole shell pendants out of *Glycymeris*, *Pecten*, and *Conus*. *Glycymeris* were easily modified into pendants by drilling or abrading a hole in the umbo, also known as the hinge, portion of the shell. The Hohokam could wear *Glycymeris* pendants in multiples as beads on a stringed necklace or as a central pendant on a necklace (Jernigan 1978). *Pecten* was also manufactured into whole shell pendants (Figure 3.12). *Pecten* is a fragile shell so it was easy to drill. Both *Pecten* and *Glycymeris* were perforated. Perforated *Glycymeris* often had mosaic overlay. Additionally, the Hohokam used *Turritella*, *Cerithidea*, and *Vermetus* as whole pendants (Jernigan 1978).

Figure 3.12. WUPA 1862 *Pecten* whole shell pendant from Wupatki Pueblo.

The Hohokam had many well-defined geometric pendant forms. Geometric pendants first appear in the Colonial period. Disc, perforated, coiled snake, sunburst, oblong, square, diamond, needle, phallus, and miscellaneous geometric pendants occur. Simple flat and round pendants exist with perforations near the edge (Figure 3.13). The Hohokam modified circular pendants by drilling large perforations in the center, which would leave a hole for suspension. In addition, sometimes a small tab was left on the top of the ring for suspension. In some cases, the Hohokam left this tab rather large and transformed it into a rattlesnake head. Some of the round pendants were also turned into coiled snakes (Jernigan 1978). An additional geometric pendant form is the sunburst. Archaeologists first discovered the sunburst pendant at Snaketown. The sunburst is created from a circular or oval pendant. Regular notches are cut into the periphery to give the pendant the appearance of rays from the sun (Jernigan 1978).

Figure 3.13. WUPA 5223 *Pecten* round pendant from Wupatki Pueblo.

Similar to the tab pendants, rectangular pendants have rounded corners. Additionally, they have concave sides. Rectangular pendants are distinguishable from tab pendants based on their size. Rectangular pendants are much larger and more elongated than tab pendants (Jernigan 1978). Square pendants have sharp contours and most are centrally perforated. Some could be used as beads instead of pendants (Jernigan 1978). Additionally, the Hohokam manufactured needle pendants. They are generally too thick to have been used as actual sewing needles. Needle pendants are most likely made out of reworked *Glycymeris* shell bracelets (Jernigan 1978).

The Hohokam made a variety of shell pendants into zoomorphic forms. Zoomorphic is defined as representing or having the form of an animal. Hohokam zoomorphic pendants are found in the shapes of birds, frogs, lizards, snakes, insects, and quadrupeds (Jernigan 1978). Although humans are not zoomorphic, archaeologists have found shell pendants in human forms.

The Hohokam created a variety of pendants in bird forms: flight views, side views, and sculptural. The simplest form is birds in flight. These transpire from the Pioneer period to the Classic period and become more stylized as time progresses. More complex forms are seen through side views and sculptural bird pendants (Jernigan 1978).

The Hohokam manufactured frog and lizard pendants from the Colonial period to the Classic period. Frog pendants were typically created out of *Glycymeris* shells because they already had the curved shape needed. Lizard pendants vary and increase in stylization over time. Many of the lizard pendants resemble the needle pendant (Figure 3.14) and suggest that they were reworked from *Glycymeris* bracelet fragments and therefore were utilitarian items (Jernigan 1978). Rattlesnake pendants are quite common. Like needle and lizard pendants, they also seem to be made from reworked *Glycymeris* bracelet fragments.

Figure 3.14 WUPA 418 *Glycymeris* lizard pendant from Wupatki Pueblo (Image courtesy of Ryan Belnap and Dan Boone).

The Hohokam manufactured quadruped pendants from the Pioneer period to the Classic period. They are defined by the treatment of the legs, eyes, mouth, and internal details. Jernigan (1978) places quadruped pendants into two categories: stubby unbent legs with absent eyes and little internal details or double bended legs in opposite directions with internal details. Jernigan (1978) believes that the second category, double bended legs in opposite directions with internal details, is more typical of Hohokam quadruped pendants.

Tinklers. *Conus* shells are mostly found in the Classic period. Whole shells had the spire end and internal column removed in order to create a musical effect. This type of manufactured shell is called a tinkler (Figure 3.15). Tinklers were often strung together in order to make a rattling sound (Jernigan 1978).

Figure 3.15. WUPA 8306 *Conus* tinkler from Wupatki Pueblo.

Bracelets. The most common form of Hohokam bracelet was made out of *Glycymeris* shell (Figure 3.16). The Hohokam removed the center of the shell and left the margins of the shell in order to form a bracelet (Jernigan 1978). *Glycymeris* shell bracelets were a large part of Hohokam culture. All Hohokam peoples wore *Glycymeris* shell bracelets, as this was part of Hohokam identification and culture. The bracelets could be plain, have simple decorations, or have elaborate zoomorphic motifs. The most frequent design on carved and incised bracelets is the rattlesnake. Throughout time, the design of the rattlesnake becomes more complex and changes from a single rattlesnake to twined-double rattlesnakes (Jernigan 1978). The Hohokam often left the umbo of *Glycymeris* shell when manufacturing and used the umbo as a design element. In some cases, the Hohokam transformed the umbo into a frog, bird, or snake. Additionally, the Hohokam sometimes overlaid bracelets with turquoise (Jernigan 1978). Archaeologists think the Hohokam used insect lac as an adhesive when overlaying shell (Biscula et al. 2017).

Figure 3.16. *Glycymeris* bracelet from Wupatki Pueblo (Image courtesy of Ryan Belnap and Dan Boone).

Rings. Like Hohokam bracelets, rings were made out of small *Glycymeris* shells. These would have resembled a wide band bracelet because if the band was too thin on a ring, it would break (Jernigan 1978). Similar to bracelets, the most common design on rings is the rattlesnake.

Etched Shell. The Hohokam invented a technique to etch shell, which was typically done on *Laevicardium*. The Hohokam would use sap from a plant or tree and a weak acid, such as Saguaro fruit vinegar. The Hohokam painted the resist on the shell where no etching was to take place. They then placed the shell into acid. The acid would remove the parts of the shell that were not resist. Therefore, the resist would be a raised area and the area exposed to acid would be etched. The Hohokam etched patterns and designs into shell. The designs could be zoomorphic or geometric (Jernigan 1978).

Non-Hohokam Shell Manufacturing

There is little evidence of shell manufacturing at Ancestral Puebloan and Sinagua sites. Archaeologists have found limited amounts of shell manufacturing debris and very few shell manufacturing tools. The shell artifacts found at these sites are thought to have been manufactured by the Hohokam and then traded to the Ancestral Puebloans and Sinagua as finished products.

Beads. Archaeologists have found large and small shell disc beads made from *Haliotis*. Cylindrical, bilobed, square, rectangular, and saucer-shaped shell beads are not common, but have been found. Additionally, archaeologists have also recovered claw-shaped *Spondylus* and *Chama* beads. Bead bracelets were common amongst the Ancestral Puebloans. They consisted of a complete string of various beads or a few beads on a cord. Both adults and children wore bead bracelets (Jernigan 1978). *Olivella* shell beads are the most dominant shell artifacts found at Ancestral Puebloan and Sinagua sites. *Turritella*, *Nassarius*, and *Columbella* beads are uncommon (Jernigan 1978).

Pendants. People manufactured shell into several varieties of pendants. Tab pendants were typically made of turquoise, but there are a limited number found made of shell. Tab pendants were typically used as ear pendants. Archaeologists have also found tab pendants on necklaces with smaller beads (Jernigan 1978).

For whole shell pendants, there is an almost complete absence of the use of *Pecten* and *Vermetus* shells. Whole *Glycymeris* pendants are the most prominent among the Ancestral Puebloans. *Conus* were worn as single pendant necklaces, bracelets, or around the waist. People most likely used *Turritella* as pendants on necklaces or as ear pendants (Jernigan 1978).

Most of the geometric pendants found are made out of stone. The geometric shell pendants were typically large and round. The most common geometric pendants are rectangular with rounded corners and vaguely parallel sides. Like the Hohokam, the Ancestral Puebloans and Sinagua reworked *Glycymeris* shell bracelet fragments into coathanger and needle forms of pendants (Jernigan 1978).

The Ancestral Puebloans and Sinagua manufactured significantly less zoomorphic pendants than the Hohokam. Birds are the main forms produced. The bird pendants are mostly found in the sculptural mode. On occasion, snake representations in shell were found. Archaeologists think these objects were locally produced. Shell frogs and lizards are uncommon and are thought to be items that were acquired by trade (Jernigan 1978).

Tinklers. *Conus* tinklers are found in small numbers at northern Arizona sites. There is a small presence of *Conus* tinklers during the Pueblo III period (Jernigan 1978).

Bracelets. The shell bracelets found are made out of *Glycymeris*. They are typically thin to medium in band width with widths ranging from three to 11 millimeters (Vokes 2006). Most are plain and undecorated, but few carved bracelets have been found. The farther north from Hohokam sites, the less frequent shell bracelets become (Jernigan 1978).

Rings. Rings are not commonly found at Ancestral Puebloan and Sinagua sites. If found, they are typically made of jet or bone. It is rare to find shell rings at Ancestral Puebloan and Sinagua sites (Jernigan 1978).

Mosaic Overlay and Inlay. Archaeologists have found shell with mosaic overlay, such as shell discs (Jernigan 1978). Overlay consists of completely covering the surface of one material with another material. An example of overlay would be a shell pendant completely covered with turquoise tesserae.

Ancestral Puebloans and the Sinagua more typically used shell as a backing for mosaic inlay. Inlay consists of pieces of different material placed flush with the surface of another material. An example of inlay would be a shell pendant inlaid with turquoise. The mosaic inlay would often have a motif and design such as a chevron motif with a bold design. Ancestral Puebloans and the Sinagua manufactured simpler objects such as shell bracelets with rectangular turquoise inlaid bracelet bands (Jernigan 1978).

Prehistoric Shell Trade

Since archaeological sites in the Southwest are not located near large water sources, trade of shell objects must have transpired between prehistoric cultural groups. Additionally, since the majority of the shell recovered from Southwestern archaeological sites is marine shell, trade between Southwestern cultural groups and cultural groups close to oceans must have occurred.

Prehistoric Trade Routes. Previous research on prehistoric shell artifacts in northern Arizona focuses on shell trade routes and uses. Research conducted on prehistoric shell trade routes determined trade routes from the Gulf of California, coast of California, and Gulf of Mexico to northern Arizona (Brand 1938). There are several different plausible trade routes of shell from the Gulf of California to northern Arizona (Figure 3.17). People could have carried shell from the Gulf of California to the region of the Hohokam, near modern day Tucson and Phoenix, and then north. The shell also could have travelled from the Gulf of California to Papaguería to the Hohokam and then to northern Arizona. Shell traded from the Gulf of Mexico would either first go to southwestern New Mexico, travel northwest to the Hohokam, and then travel north or the shell would travel first to the middle of New Mexico, west across the border into Arizona, and then north to northern Arizona (Brand 1938). These trade routes suggest

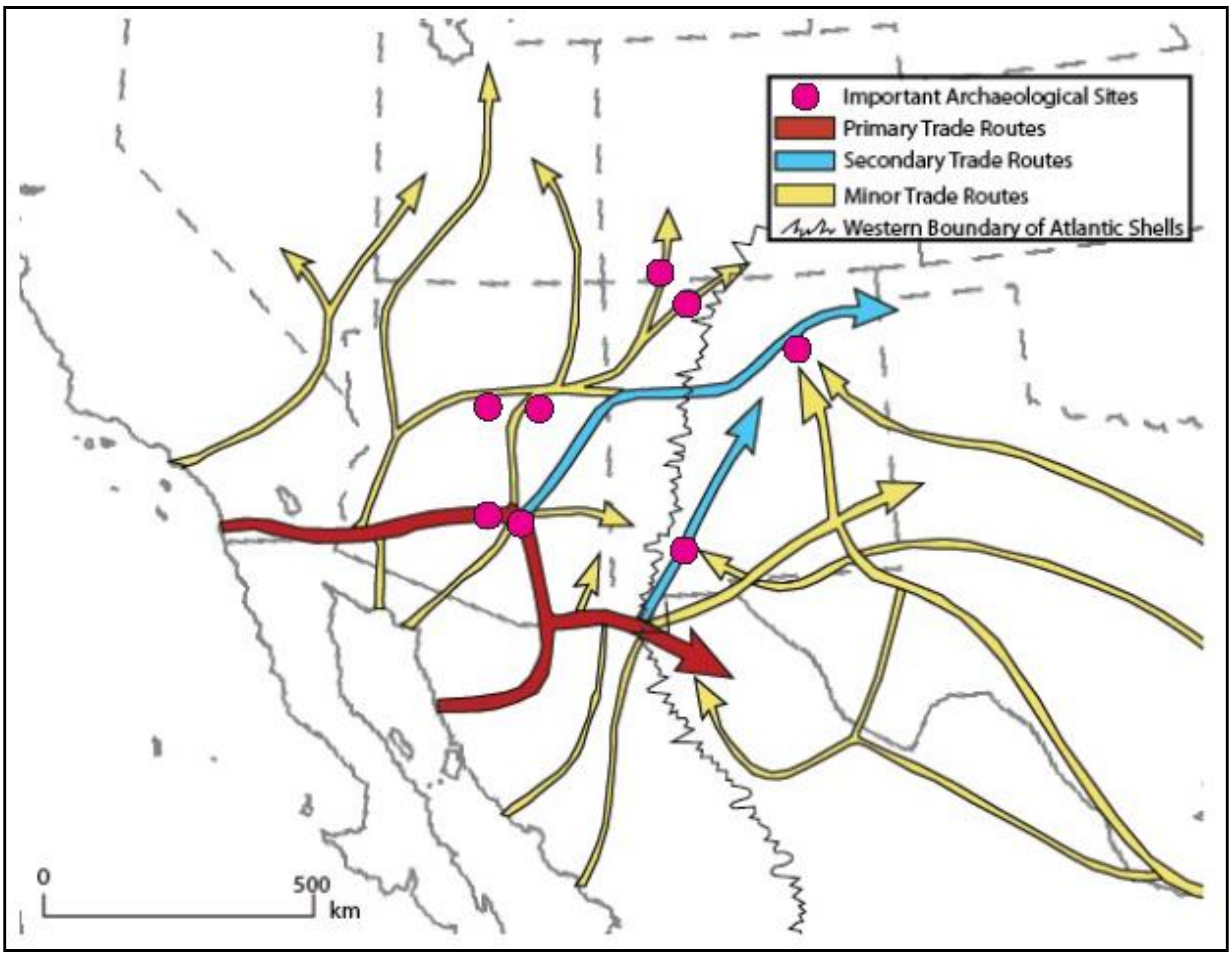


Figure 3.17. Prehistoric trade routes of shell from the Gulf of California, coast of California, and Gulf of Mexico to the Southwest (Adapted from Brand 1938; Schinsing 2012).

that there were several different pathways for shell trade to occur to the Colorado Plateau and that through these pathways, trade between different prehistoric cultural groups occurred.

Importance of Trade. Trade and exchange are important in the prehistoric Southwest because they show the importance of relationships with other cultures. Shell is seen as an exotic resource in the Southwest because shells were hard to acquire since they originated from hundreds of miles away. Shell resources were within direct access to some cultures and only available through trade to other cultures causing shell to be seen as a natural product because people of one area acquired the shell and people of another area consumed it (Colton 1941). Generally, the farther north an archaeological site is in the Southwest, the less abundant shell is (Vokes 1999). The common occurrence of shell at Wupatki Pueblo is significant because it shows that extensive trade networks and trade relationships must have existed in order for the Ancestral Puebloans to acquire such a large quantity of shell objects.

Trade is also important to social networks. Social networks in the Southwest transformed across spatial, temporal, and social scales. Social distance does not always correlate with spatial distance because the presence of network relationships spans long geographic distances. Spatial proximity predicts social connectedness based on material culture from archaeological sites. Most social interaction took place within a day's round trip walk from home. Therefore, archaeologists anticipate that sites would have stronger social connections to proximate sites because virtually all travel and movement of goods was pedestrian (Mills et al. 2012). The exchange of shell in social networks adds prestige to individuals who acquire, display, and control these objects (Trubitt 2003). The exchange of shell in social networks in turn causes shell to be seen as a prestige good and, therefore, materializes the political, social, and economic relationships between people at local and regional scales (DeMarrais et al. 1996).

Hohokam Presence and Influence on Ancestral Puebloans and the Sinagua

The presence and influence of the Hohokam is seen in a variety of ways in northern Arizona archaeological sites. This can be seen through migration, trade, and style.

Migration. Since the 1920s, archaeologists have debated the presence and influence of the Hohokam on Ancestral Puebloans and the Sinagua. The research focused on Ancestral Puebloan and Sinagua sites with Hohokam traits after the eruption of Sunset Crater Volcano in A.D. 1064. For example, there is a high frequency of Hohokam traits and traded goods such as cremation burials, platform mounds, ballcourts, trash mounds, architecture, spindle whorls, ceramic figurines, Gila-shouldered jars, red-on-buff pottery, and shell ornaments found at these sites (Murphy 2000). These artifacts and traits indicate influence from the Hohokam, most likely due to migration by the Hohokam to northern Arizona (Colton 1918, 1936, 1960; McGregor 1937a, 1937b).

The early researchers on Hohokam migration to northern Arizona are Lyndon L. Hargrave, Katherine Bartlett, Harold Colton, and John McGregor. All of these researchers are associated with the Museum of Northern Arizona. Michael Stanislawski, a graduate student attending Arizona State University in the 1960s, also conducted research on Hohokam migration to northern Arizona. Hargrave and Bartlett determined that there was a strong presence and influence of the Hohokam at Turkey Tanks (Hargrave 1932; Bartlett 1934). Bartlett attributed these Hohokam characteristics to Hohokam migration to northern Arizona (Bartlett 1934). Colton created the “black sand hypothesis” which stated that the eruption of Sunset Crater Volcano allowed for better agricultural conditions and therefore attracted other people to migrate to northern Arizona, such as the Hohokam (Colton 1936, 1946, 1960). McGregor agreed with Colton and thought that the eruption of Sunset Crater Volcano attracted migrant populations (McGregor 1941). Additionally, Stanislawski agreed with Colton and McGregor and believed that the Sinagua were a homogenous culture before the eruption of Sunset Crater Volcano. After the eruption, various people from different regions, such as Mogollon, Chaco Canyon, and Hohokam, migrated to northern Arizona and led to the cultural blending of the Sinagua (Stanislawski 1963).

More recently, archaeologists (Downum 1988; Kelly 1971; Hevly et al. 1979; Fish et al. 1980; Pilles 1978, 1979) have challenged Colton’s “black sand hypothesis.” John P. Wilson (1969) proposed that the cause of the influx of migrants from the surrounding areas was not due to the increase in agricultural conditions from the eruption of Sunset Crater Volcano, but rather was due to an increase in population in these cultures. Additionally, Pilles (1978, 1979) and Fish et al. (1980) agreed with Wilson’s criticisms of the “black sand hypothesis.” Pilles (1978, 1979) does not agree with the idea that prehistoric migrants moved to northern Arizona due to an increase in agricultural productivity from the eruption of Sunset Crater Volcano. Instead, an increase in rainfall and warmer temperatures increased population rather than volcanic mulch. Pilles (1979) also states that the increase in population seen in the Sinagua after the eruption of Sunset Crater Volcano can also be seen throughout the Southwest at the same time. Therefore, the increase in population is not just unique to the Sinagua (Pilles 1979).

Trade. Many archaeologists, such as Fish et al. (1980), question the idea that Hohokam migration to northern Arizona ever happened. Instead, they propose that Hohokam influence and presence in northern Arizona is a result of trade relations and Hohokam traders co-living at large Ancestral Puebloan and Sinagua sites. Murphy (2000) agrees with this and states that it is likely that Hohokam people were co-residents at Sinagua sites, specifically at Winona Village and Ridge Ruin.

McGuire and Downum (1982) examined prehistoric north/south trade networks by using down the line exchange to analyze shell found at Sinagua sites and Kayenta branch black-on-white ceramics found at Hohokam sites. Jernigan (1978) discussed the near absence of shell ornaments at Ancestral Puebloan sites, which contrasts with Hohokam sites where there is a high presence of shell ornaments. Jernigan (1978) thinks this is due to indirect trade between the Hohokam and Ancestral Puebloans rather than through direct trade. Jernigan (1978) proposes that the Hohokam traded with the Mogollon who then traded with the Ancestral Puebloans. An analysis of the shell artifacts recovered from excavations at Wupatki Pueblo revealed that shell artifacts at Wupatki Pueblo originated from the Gulf of California, coast of California, and Gulf of Mexico. A high quantity of worked shell indicates trade from the Hohokam to the residents of Wupatki Pueblo (Stanislawski 1963). Mills (2008) indicated that the presence of shell trumpets at northern Arizona sites allowed for the identification of social networks related to ritual practices.

Additionally, archaeologists can see the influence of the Hohokam through ballcourts at Sinagua and Ancestral Puebloan sites. Wilcox (1993) and Fish et al. (1980) support the idea that Hohokam-style ballcourts at northern Arizona sites were perhaps redistribution centers and therefore allowed for trade and exchange to transpire between the Sinagua, Ancestral Puebloans, and the Mogollon. Murphy (2000) and Hedquist (2012) determined that exotic goods in Sinagua and Ancestral Puebloan sites were more likely to be found at sites with large ceremonial structures such as kivas, ballcourts, and plazas.

After the eruption of Sunset Crater Volcano, there is a dramatic shift in Sinagua communities as evidence of the construction and use of Hohokam ballcourts. The construction and use of Hohokam ballcourts not only allowed for public ritual, but also allowed for an integration of the region through interaction networks and long distance exchange (Gruner 2012). The influence of the Hohokam on the Sinagua could be evidence of ritual pilgrimages by the Hohokam to the Sinagua area to see volcanic activity (Whittaker and Kamp 1992; Lekson 2008). O'Hara (1998) examined Hohokam-style red-on-buff ceramics at northern Arizona sites and determined that either the ceramics were manufactured by Sinagua people who were attempting to create social connections with Hohokam trading partners, the Southern Sinagua introduced these ceramics to the Northern Sinagua, or that a Hohokam trader could have lived at Winona Village.

Conclusion

This thesis further examines the presence and influence of the Hohokam on Ancestral Puebloan and Sinagua sites. The presence and influence of the Hohokam could be from migration, trade, or co-residence. This can be seen by the distribution and style of shell artifacts present at Wupatki Pueblo and other northern Arizona sites. This thesis will add information on Hohokam presence and influence at northern Arizona sites by examining Hohokam migration, trade, and co-residence with Ancestral Puebloans and the Sinagua.

CHAPTER FOUR
THEORETICAL PERSPECTIVES

This chapter discusses the theoretical bases for this thesis: political economy, prestige model of exchange, and craft economies. Additionally, I review the major themes regarding political economy, prestige model of exchange, and craft economies. I also indicate how I will use political economy, prestige model of exchange, and craft economies to determine the relationship based on shell trade and manufacturing between the Hohokam, Ancestral Puebloans, and Sinagua.

Political Economy

The theory of political economy dates back to Greek philosophers such as Plato and Aristotle (Veseth and Balaam 2014). The theory of political economy really took off in the mid-18th century due to a reaction to mercantilism (Veseth and Balaam 2014). Scottish philosophers Adam Smith and David Hume as well as French economist François Quesnay took a secular approach to explain the interactions between political, technological, economic, social, and natural factors (Veseth and Balaam 2014). Karl Marx coalesced the theory of political economy in the 1800s. Marx combined elements from a number of existing ideas to create a holistic way of thinking systematically about economics and society (Marx 1867; Veseth and Balaam 2014). According to Marx, political economy is the study of structural relationships defined by the control of wealth and the creation of inequality in society (Marx 1904).

Political economy in anthropology consists of the analysis of social relations based on inequality related to wealth and power (Hirth 1996). The theory of political economy is significant in anthropology because it gives systematic attention to social and human factors related to economics (Roseberry 1988). Political economy examines the economic structure in society and phenomena of social hierarchy, exchange, and roles (Hirth 1996). It is open to symbolic analysis, historical attitude, and regional focus (Roseberry 1988). It looks at the social relations of production and productive consumption (Gregory 2000).

Political economies in archaeology consist of either the reconstruction of the mix of resource mobilization strategies in societies at different times and in different places or the identification of common mechanisms of resource creations, manipulations, and expropriation used in different levels of social organization. Archaeologists use the theory of political economy to look at sociopolitical situations, such as social hierarchy within groups, trade patterns, and social complexity in relation to production and control (Hirth 1996). The dominant view in archaeology is that political systems evolve proportionally to access and control over resources. Political economy aims to explain the reasons for generating surplus above what is required for normal subsistence (Hirth 1996).

Hirth (1996) describes the obtainment of materials in relation to political economy. Production, service, and distribution are the main focus of political economy in archaeological theory. When looking at production, the focus is on control within craft and food surpluses. When looking at service, the focus is on compensating elites for participating in and fulfilling specific social roles. The distribution of resources involves direct and indirect control. When looking at exchange of prestige goods, distribution strategies are important to observe.

Hirth (1996) outlines four different exchange strategies in political economies: elite distribution, interregional exchange, world system linkages, and tribute/mobilization systems. Interregional exchange networks allow for neighboring groups to exchange utilitarian and prestige goods, such as shell, and allow for the formation of alliances. In interregional exchange, elites controlled the trade of prestige goods and therefore controlled social hierarchy. Elites also controlled the production and movement of goods at a local level. Interregional exchange allows for exchange to be used as a tool for access to non-local goods and raw materials.

Political economy allows for the study of the differences in wealth and power based on inequalities in societies as well as for the study of trade and product manufacturing. I believe that political systems evolve proportionally with control over and access to resources, specifically with traded and exchanged resources, therefore, the use of the theory of political economy will allow me to determine if there was a surplus of shell objects acquired from trade that was above normal subsistence needs indicating a political economy occurred.

I use political economy in this thesis to explore why shell trade existed at Wupatki Pueblo. Political economy would explain the difference in wealth and power between the people of Wupatki Pueblo based on exotic trade goods. The political economy of Wupatki Pueblo could have evolved along with the increased presence and control over exotic trade goods. Additionally, I will use political economy to determine inequalities based on wealth and power between the Ancestral Puebloans of Wupatki Pueblo and the Hohokam.

Prestige Model of Exchange

The prestige model of exchange looks at the social context of exchange through power and prestige with external allies (Figure 4.1). The prestige model of exchange is not limited to elites. Elevated social status is identified in the prestige model of exchange by the movement of high valued goods and mates among societies and individuals. Prestige economies are multilayered systems where subordinate relationships between elites or elders and individuals of lesser or greater power exist. There must be controlled access to luxury items in order for the luxury items to maintain value. Individuals obtain power through external exchange by controlling access to goods (Bradley 2000). In prestige goods models, archaeologists expect to see high concentrations of prestige goods in elite contexts and low concentrations in non-elite contexts. Archaeologists also expect the prestige goods to directly correlate with the strength of control and ability to monopolize resources by the elite (Saitta 2000).

There are several expectations regarding shell exchange in the prestige model of exchange. The distribution of shell goods would not be randomly spread across the landscape and the quantity of shell would not decrease with distance from the source. Shell would mostly be confined to communities that had elites where there would be control over the restriction and production of shell. Restricted access to shell would help maintain political and social power and control over prestige goods. Additionally, the shell would have had to be distributed in order for its value to be maintained. Ethnicity and population migration could cause the complexity of shell exchange (Bradley 2000).

Similar to political economy, the prestige model of exchange is based on social inequalities and stratified societies and consists of controlled access of goods by elites.

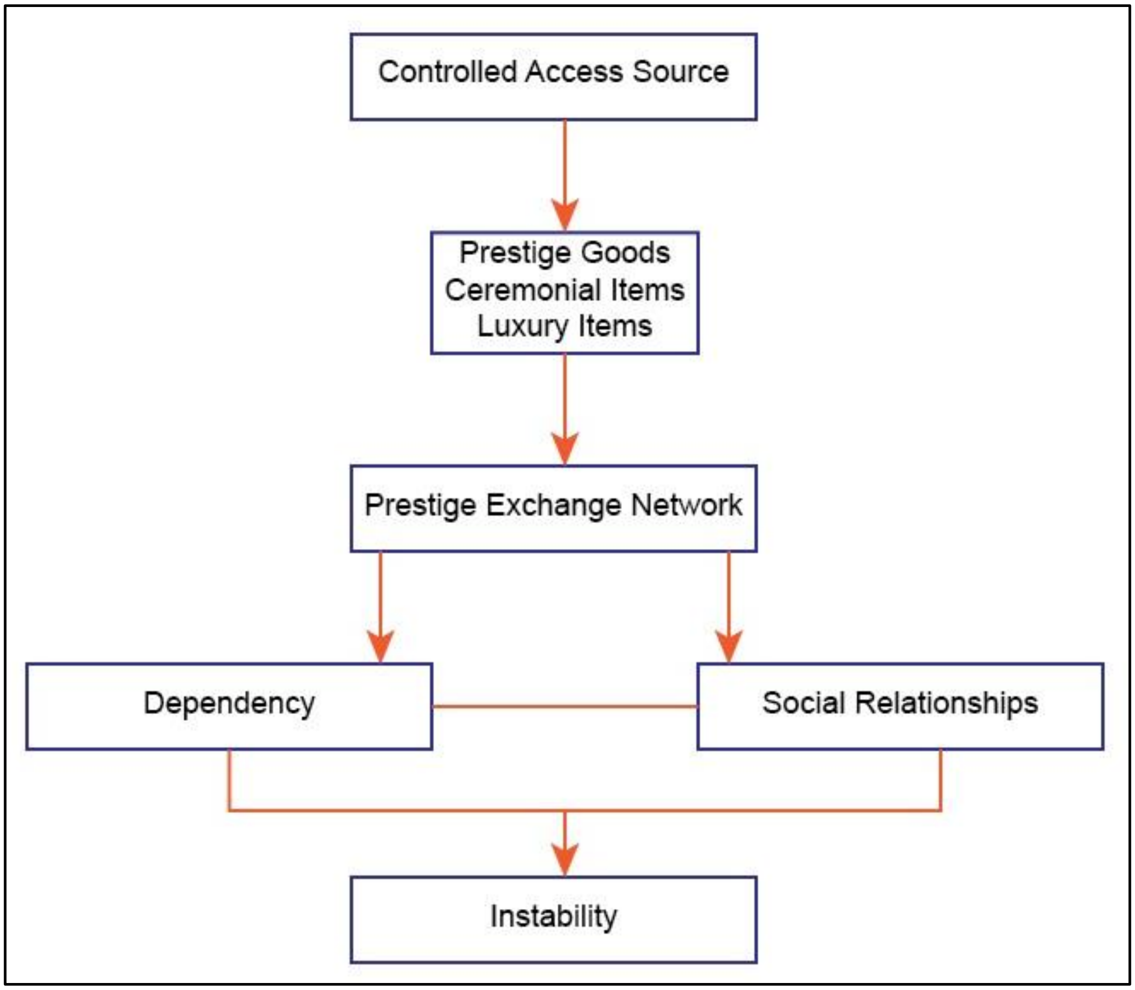


Figure 4.1. A flow chart of the prestige model of exchange (Adapted from Bradley 2000; Schinsing 2012).

If there is a large concentration of prestige goods then it is assumed that there was strong control by elites over these prestige goods.

I use the prestige model of exchange in this thesis to aid in a spatial analysis to determine elite rooms or areas in Wupatki Pueblo based on the high concentration of shell artifacts. In order to determine this, context and symbolic meaning must be taken into account. They symbolic meanings of artifacts are bounded within contexts and therefore are not arbitrary. In order to understand elite areas at Wupatki Pueblo based on shell, the symbolic meaning of the shell needs to be considered (Hodder 1992). Since the prestige goods model is based on the fact that elites controlled prestige goods, there should be a higher concentration of shell artifacts in elite areas and a lower concentration of shell artifacts in non-elite areas. Since prestige goods models pay little attention to how procured goods are distributed to the general population (Saitta 2000), I will rely on political economy and craft economies to determine this.

Craft Economies

Similar to political economy and the prestige model of exchange, craft economies were controlled. Craft economies consist of ancient peoples acquiring raw materials, fashioning raw materials into finished goods, and consuming or distributing these products into larger economic networks. Craft specialization in the Southwest did not always sufficiently explain the complexity of the region. The relationship between context, scale, and intensity of craft specialization and leadership, gender, and ethnicity of social institutions generated different economies. Archaeologists should focus on identifying and interpreting the links between social institutions and craft economies in middle-range societies (Bayman 1999).

Sociopolitical processes and institutions played a dominate role in influencing craft economies. In the prehistoric Southwest, people transported marine shell and prestige goods hundreds of miles, but non-prestige goods only moved within a reasonable distance from the occupation area (Bayman 1999).

There are several contemporary theories regarding craft economies. One theory is that social action (Clark and Blake 1994) rather than ecological variables (Arnold 1985) influences craft economies and change in society. The focus in Southwestern archaeology today with craft economies is on human agency (Feinman 1992, 1995; Kantner 1996) and historical conditions that shaped production, rather than external forces (Hirth 1996; Hays-Gilpin et al. 1996). Another theory is that individuals or groups of elites in Southwestern societies maintained and controlled craft economies, labor, and resources (Sebastian 1992). A third and final theory is that dynamic processes in the archaeological record indicate that prehistoric peoples were interdependent and that other mechanisms besides exchange must have controlled the production and trade of crafts (Bayman 1999).

I agree with Bayman that in craft economies, the relationship between context, scale, and intensity of craft specialization in relation to gender, ethnicity, and leadership of societies led to different economies. This can be seen through the differences between egalitarian and stratified societies as well as through small scale and large scale societies. I also agree that social action influenced craft economies rather than ecological variables. Some degree of ecological variables most likely were a factor, but since craft economies mostly consist of prestige goods, it seems more likely that social variables such as allies, trade relationships, and social status were a major factor in craft economies.

I use craft economies in this thesis to gain a better understanding of the relationship between social institutions and craft economies. By looking at human agency and historical conditions rather than external forces, such as the environment and demographic pressures, I will determine how the production of shell objects was shaped. I use craft economies to determine how elites and exchange controlled the production of shell artifacts. Additionally, I use artifact characterization to determine evidence of production at Hohokam sites and potentially at Wupatki Pueblo.

Conclusion

It will be essential to use the theories of political economy, prestige model of exchange, and craft economies to understand the trade relationships between the Hohokam, Ancestral Puebloans, and Sinagua. By using these theories and focusing on prehistoric shell artifacts, this thesis will help to elucidate the social inequalities between the people of Wupatki Pueblo and determine how trade and specialized manufactured goods played a role in social inequality.

CHAPTER FIVE
PREHISTORIC SHELL DATA AND METHODS OF ANALYSIS

In the previous chapter, I discussed the theories that I will be using throughout this thesis: political economy, prestige model of exchange, and craft economies. I use these theories to help explain the social inequalities between the people of Wupatki Pueblo and determine how trade and specialized manufactured goods played a role in social inequality. This chapter explores the shell assemblages used in this thesis along with the methods used to analyze the shell data. The sections of this chapter discuss six datasets used for comparison and the methods used to analyze the prehistoric shell assemblages.

Archaeological Shell Data

The shell assemblages analyzed come from five main sources: the Museum of Northern Arizona, the Western Archeological and Conservation Center, Coconino National Forest, published data from Northland Research, Inc. excavations (Marmaduke et al. 1993), and a Northern Arizona University Master's thesis (Murphy 2000). Data collected from these sources includes shell genus and species, artifact type, context, and shell count.

Wupatki Pueblo. The Museum of Northern Arizona in Flagstaff, Arizona, the Western Archeological and Conservation Center in Tucson, Arizona, and the Wupatki National Monument visitor center about 40 miles north of Flagstaff, Arizona house the shell assemblage from Wupatki Pueblo. I analyzed the shell data set housed at the Museum of Northern Arizona and the Wupatki National Monument visitor center. The shell data set housed at the Western Archeological and Conservation Center was previously analyzed. Additionally, trail work and excavations occurred at Wupatki Pueblo in the fall of 2017. Since the fieldwork had not been completed by the time my analysis took place, the shell recovered during 2017 is not included in this data set. The shell data set for Wupatki Pueblo contains information regarding catalog number, artifact type, completeness, measurements, provenience, description, condition, Hohokam manufacturing techniques, shell count, shell genus and species (Appendix A).

Elden Pueblo. The Museum of Northern Arizona in Flagstaff, Arizona houses the shell assemblage from Elden Pueblo. The Coconino National Forest controls the assemblage and previously analyzed the assemblage. The shell data set for Elden Pueblo contains information regarding catalog number, artifact type, completeness, measurements, provenience, description, condition, shell count, and shell genus and species (Appendix B).

Winona Village. The shell assemblage from Winona Village comprises six sites. The Museum of Northern Arizona in Flagstaff, Arizona houses the shell assemblage from Winona Village. Tracy L. Murphy previously analyzed the shell data set for Winona Village for her Master's thesis *Ornamentation and Social Affinity: Shell Ornaments and the Hohokam Influence at Winona Village* (Murphy 2000) at Northern Arizona University. The shell data set for Winona Village contains information regarding site, catalog number, artifact type, completeness, provenience, condition, shell count, and shell genus and species (Appendix C).

Ridge Ruin. The shell assemblage from Ridge Ruin comprises four sites. The Museum of Northern Arizona in Flagstaff, Arizona houses the shell assemblage from Ridge Ruin. Tracy L. Murphy also analyzed the data set for Ridge Ruin for her Master's thesis *Ornamentation and Social Affinity: Shell Ornaments and the Hohokam Influence at Winona Village* (Murphy 2000) at Northern Arizona University. The shell data set for Ridge Ruin contains information regarding site, catalog number, artifact type, completeness, provenience, condition, shell count, and shell genus and species (Appendix D).

Shelltown. Northland Research, Inc., an Arizona based Cultural Resource Management company, analyzed the shell assemblage from Shelltown. Northland Research, Inc. published the excavation report as *Shelltown and The Hind Site: A Study of Two Hohokam Craftsman Communities in Southwestern, Arizona, Volume 1* (Marmaduke et al. 1993). The shell data set for Shelltown contains information regarding artifact type, completeness, provenience, condition, shell count, and shell genus and species (Appendix E).

The Hind Site. Northland Research, Inc., an Arizona based Cultural Resource Management company, analyzed the shell assemblage from the Hind Site. Northland Research, Inc. published the excavation report as *Shelltown and The Hind Site: A Study of Two Hohokam Craftsman Communities in Southwestern, Arizona, Volume 1* (Marmaduke et al. 1993). The shell data set for the Hind Site contains information regarding artifact type, completeness, provenience, condition, shell count, and shell genus and species (Appendix F).

Analytical Methods

The methods used for my research are identification, comparison, spatial analysis using Geographic Information System (GIS) and Adobe Illustrator, and data analysis using Statistical Package for the Social Science (SPSS). These methods allowed for a better understanding of the relationship between the Hohokam and Wupatki Pueblo based on shell artifacts. These methods allowed me to determine the shell genus and artifact types; compare shell assemblages between Ancestral Puebloan, Sinagua, and Hohokam sites; and determine the significance of shell at Wupatki Pueblo.

Shell Identification. Shell identification occurred only on the shell assemblage from Wupatki Pueblo. Since the shell assemblage from Wupatki Pueblo had never been analyzed before, I analyzed the shell artifacts. Shell identification determined shell genus and species, artifact type, and Hohokam manufacturing techniques of each artifact. I recorded the species of the shell when possible. I photographed each shell genus and artifact type. Artifacts that had previously be analyzed, were reanalyzed.

Shell identification was possible with several sources and guides. I used Dr. Christian E. Downum's comparative shell collection, *A Guide to Field Identification: Seashells of North America* (Abbott 1986), and *A Field Guide to Shells: Atlantic and Gulf Coasts and the West Indies* (Abbott and Morris 1995) to identify shell genus and species. If shell genus and species identification could not be determined, I sent photographs of the artifacts to Arthur Vokes and Erika Heacock at the Arizona State Museum Archaeological Repository in Tucson, Arizona in order to make the genus and species identification. Additionally, if no determination was made, the artifacts were classified as unidentifiable.

I also analyzed the shell to identify Hohokam manufacturing techniques by using *Hohokam Marine Shell Exchange and Artifacts* (Nelson 1991) and *Jewelry of the Prehistoric Southwest* (Jernigan 1978) in order to determine if the Hohokam manufactured the shell objects and traded the objects to Wupatki Pueblo or if the people of Wupatki Pueblo manufactured shell objects. Additionally, there was the possibility of finding shell debitage present in the collection. If shell debitage was present in the assemblage, it would allow for determining if shell manufacturing occurred at Wupatki Pueblo. No shell debitage was recorded or located in collections.

Comparative Data. I compared the shell assemblages using SPSS data analysis. I compared the shell assemblage from Wupatki Pueblo to the shell assemblages of three other northern Arizona archaeological sites: Winona Village (Murphy 2000), Ridge Ruin (Murphy 2000), and Elden Pueblo. The comparison between the shell assemblage from Wupatki Pueblo and the shell assemblages from Winona Village, Ridge Ruin, and Elden Pueblo was undertaken to determine the similarities and differences between northern Arizona archaeological sites regarding artifact types and shell genus and species.

I also compared the shell assemblage from Wupatki Pueblo to Shelltown and the Hind Site (Marmaduke et al. 1993), which are Hohokam shell manufacturing sites. The comparison between the shell assemblage from Wupatki Pueblo and the shell assemblage from the Hohokam shell manufacturing sites was conducted to determine the similarities and differences regarding artifact types and shell genus and species. Additionally, the comparison was conducted to determine if shell artifacts with similar manufacturing techniques found at Shelltown and the Hind Site were found at Wupatki Pueblo. This would indicate trade of completed manufactured shell objects from the Hohokam to the people of Wupatki Pueblo or the migration of Hohokam people to Wupatki Pueblo.

Spatial Analysis. I conducted a spatial analysis on the shell assemblage from Wupatki Pueblo using GIS and Adobe Illustrator. The spatial analysis placed artifact types and shell genus into the North Unit and South Unit of Wupatki Pueblo in order to identify discernable consumer patterns as well as potential elite areas. Initially, there was an attempt to determine if there were particular rooms or areas designated for shell manufacturing at Wupatki Pueblo as seen by a high presence of shell debitage. However, no debitage was present in collections so I could not conduct this portion of the spatial analysis.

Conclusions on Prehistoric Shell Data and Methods of Analysis

This thesis includes shell assemblages from Wupatki Pueblo, Winona Village, Ridge Ruin, Elden Pueblo, Shelltown and the Hind Site. The shell assemblage from Wupatki Pueblo was analyzed by artifact type, Hohokam manufacturing techniques, and genus and species when possible. This analysis was conducted to determine if the residents of Wupatki Pueblo manufactured shell objects or if the Hohokam manufactured shell objects and traded the objects to Wupatki Pueblo. Additionally, this research aimed to answer if the Hohokam migrated to Wupatki Pueblo and became residents. Spatial analysis using GIS was conducted to help with this determination. To determine similarities and differences, the shell assemblage from Wupatki Pueblo was compared to the shell assemblages of prehistoric Sinagua sites: Winona Village, Ridge Ruin, and Elden Pueblo, in addition to Hohokam shell manufacturing sites: Shelltown and the Hind Site.

Since there is Hohokam style architecture, such as the ballcourt, and potentially Hohokam style shell present at Wupatki Pueblo, this might indicate that Hohokam people lived at Wupatki Pueblo. If they did not reside at Wupatki Pueblo, this might indicate a strong relationship based on trade between the Hohokam and Wupatki Pueblo. Regardless, the influence of the Hohokam on Wupatki Pueblo indicates a strong connection with the Hohokam that caused some residents of Wupatki Pueblo to alter their identity and social status to be different from the general population.

CHAPTER SIX
RESULTS

In this chapter, I will discuss the results from artifact identification and spatial analysis of shell from Wupatki Pueblo. I will then compare the results from Wupatki Pueblo to three Sinagua sites: Elden Pueblo, Ridge Ruin, and Winona Village as well as to two Hohokam shell manufacturing sites: Shelltown and the Hind Site.

Wupatki Pueblo

The shell assemblage from Wupatki Pueblo consists of 1,844 artifacts found in 734 occurrences. Occurrences indicate the number of museum catalog numbers and therefore indicate artifacts found in the same context. Since there are more artifacts than occurrences, this indicates that multiple artifacts were found in the same location. The assemblage consists of 22 different genera with 13 different artifact types. The shell completeness ranges from fragmented to whole. There is evidence of burning, smoothing, polishing, incising, and reworking shell. The shell was located at the site in rooms, trenches, trash mounds, retaining walls, room trash, on the surface, in the amphitheater, and in the ballcourt.

Shell Genera. The shell from Wupatki Pueblo consists of 22 different genera (Figure 5.1): *Aequipecten*, *Anodonta*, *Cardium*, *Clima*, *Conus*, *Cowry*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Murex*, *Nassarius*, *Naticidae*, *Neritina*, *Olivella*, *Oreohelix*, *Pecten*, *Polinices*, *Spondylus*, *Spondylus/Chama*, *Strombus*, and *Turritella*. Additionally, there are six different categories of shell that could not be specifically identified: Crinoid fossil, unidentified gastropod, unidentified marine bivalve, unidentified marine univalve, unidentified mollusk, and unknown shell. The majority of shell found at

Wupatki Pueblo is *Olivella* with 595 artifacts. Following *Olivella* is *Glycymeris* with 341 artifacts. The next two prominent genera are *Spondylus* and *Conus* with 321 and 170 artifacts respectively.

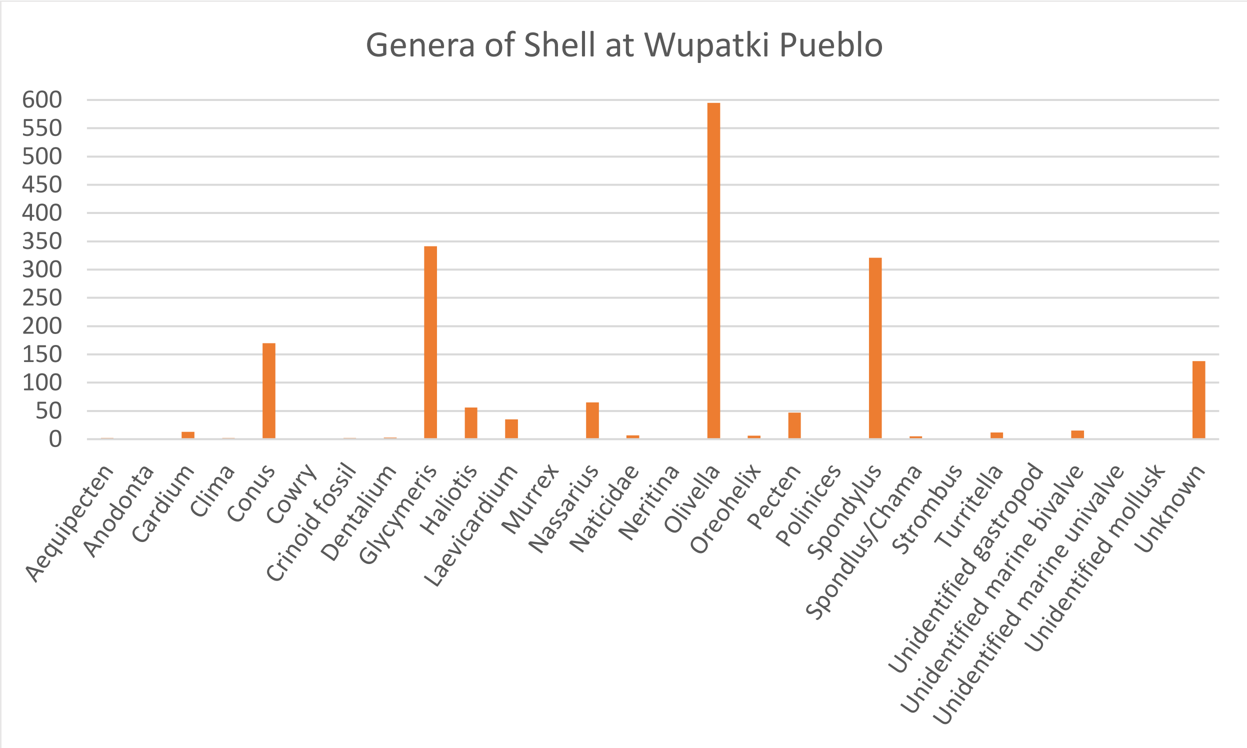


Figure 5.1. Quantity of genera of shell at Wupatki Pueblo.

Artifact Types. The shell assemblage from Wupatki Pueblo consists of 13 different artifact types (Figure 5.2): bracelet, bead, ornament, mosaic, pendant, tinkler, ring, needle, disc, figurine, trumpet, worked shell, and unworked shell. The majority of shell artifacts are beads with a total of 1,222 artifacts. Following beads are bracelets with 186 artifacts. The next two prevalent artifact types are tinklers and unworked shell with 159 and 154 artifacts respectively. From the graph (Figure 5.2), it is noticeable that almost all of the artifacts appear within a single occurrence at Wupatki Pueblo. This means that each artifact was found by itself without any other shell artifacts. The only exception to this are beads, which are almost always found in multiples.

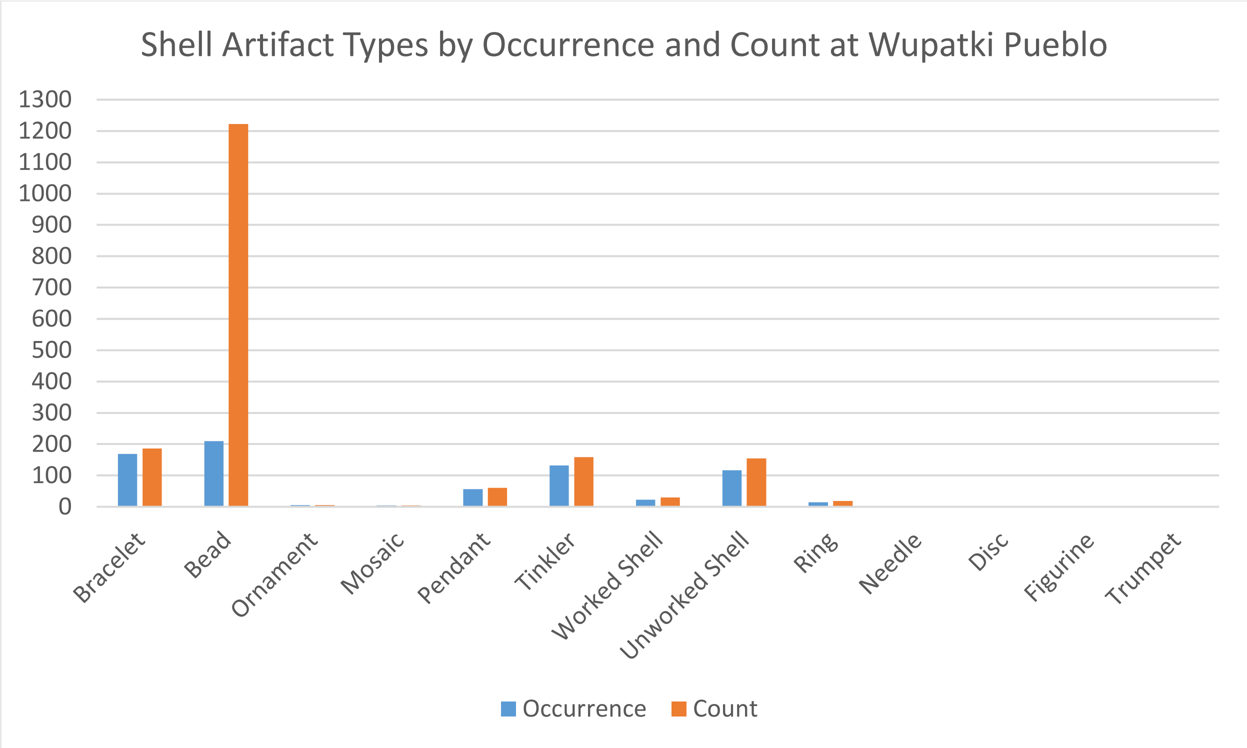


Figure 5.2. Occurrence and quantity of shell from Wupatki Pueblo.

There are differences in shell genera within each artifact category (Figure 5.3). The people of Wupatki Pueblo made bracelets from *Glycymeris* and *Haliotis* with *Glycymeris* being the most commonly used shell for bracelets with 184 artifacts. Beads were made of *Conus*, *Cowry*, Crinoid fossils, *Dentalium*, *Glycymeris*, *Nassarius*, *Naticidae*, *Neritina*, *Olivella*, *Polinices*, *Spondylus*, *Spondylus/Chama*, *Turritella*, unidentified marine bivalves, and unknown shell. *Olivella* shell beads are the most prevalent with 568 artifacts. *Spondylus*, *Glycymeris*, and unknown shell beads follow with 317, 125, and 123 beads respectively. Ornaments are made of *Pecten*, unidentified marine bivalve, unidentified marine univalve, unidentified mollusk, and unknown shell. Archaeologists recovered one ornament of each of these genera. Mosaics consist of *Haliotis*, *Laevicardium*, *Pecten*, and *Spondylus*. Archaeologists found one mosaic of

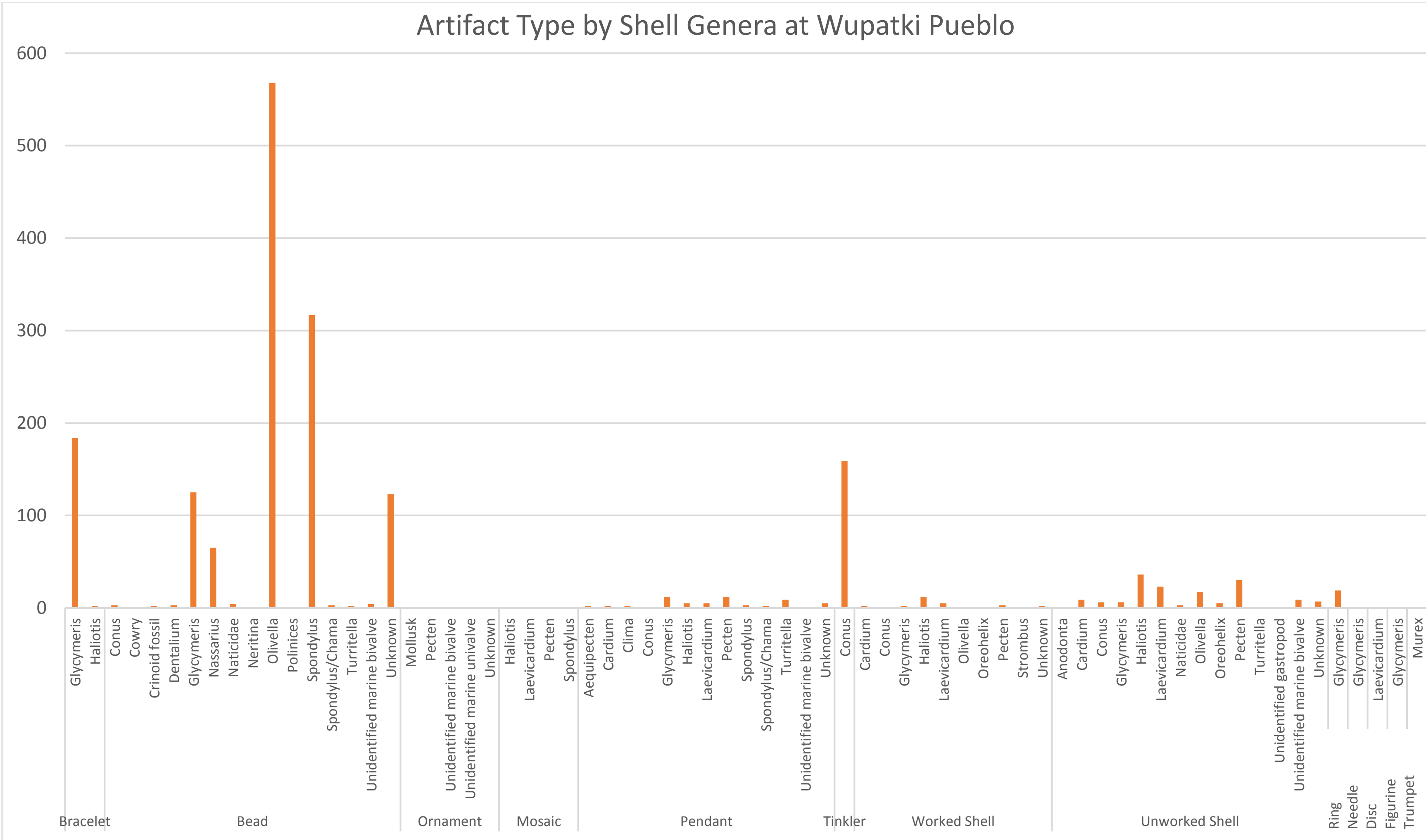


Figure 5.3 Artifact type by shell genera at Wupatki Pueblo.

each of these genera. Sixty-one total pendants were found consisting of the shell genera of *Aequipecten*, *Cardium*, *Clima*, *Conus*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Pecten*, *Spondylus*, *Spondylus*/*Chama*, *Turritella*, unidentified marine bivalve, and unknown. The most prevalent shell genera for pendants are *Pecten* with 15 artifacts and *Glycymeris* with 12 artifacts. Tinklers are only made of *Conus* and 159 were recovered. Worked shell consists of *Cardium*, *Conus*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Olivella*, *Oreohelix*, *Pecten*, *Strombus*, and unknown shell. It can be inferred that the *Strombus* fragment was originally part of a trumpet, but without a large fragment or whole specimen, this cannot be confirmed. *Haliotis* is the most prevalent genus of worked shell with 12 total artifacts. Unworked shell consists of *Anodonta*, *Cardium*, *Conus*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Naticidae*, *Olivella*, *Oreohelix*, *Pecten*, *Turritella*, unidentified gastropod, unidentified marine bivalves, and unknown. The most prevalent genus is *Haliotis* with 36 artifacts followed by *Pecten* with 30 artifacts. Rings found at Wupatki Pueblo are all made of *Glycymeris*. Additionally, archaeologists recovered one needle made of *Glycymeris*, one disc made of *Laevicardium*, one figurine made of *Glycymeris*, and one trumpet out of *Murex*.

Completeness. The shell artifacts from Wupatki Pueblo are either whole or fragmented (Figure 5.4). In seven out of 13 cases, including bracelets, tinklers, worked shell, unworked shell, rings, needles, and trumpets, there are more fragments present than whole objects. In six out of 13 cases, including beads, ornaments, mosaics, pendants, discs, and figurines, there are more whole objects than fragments. The most commonly found whole objects are beads. The most commonly found fragmented objects are bracelets and tinklers.

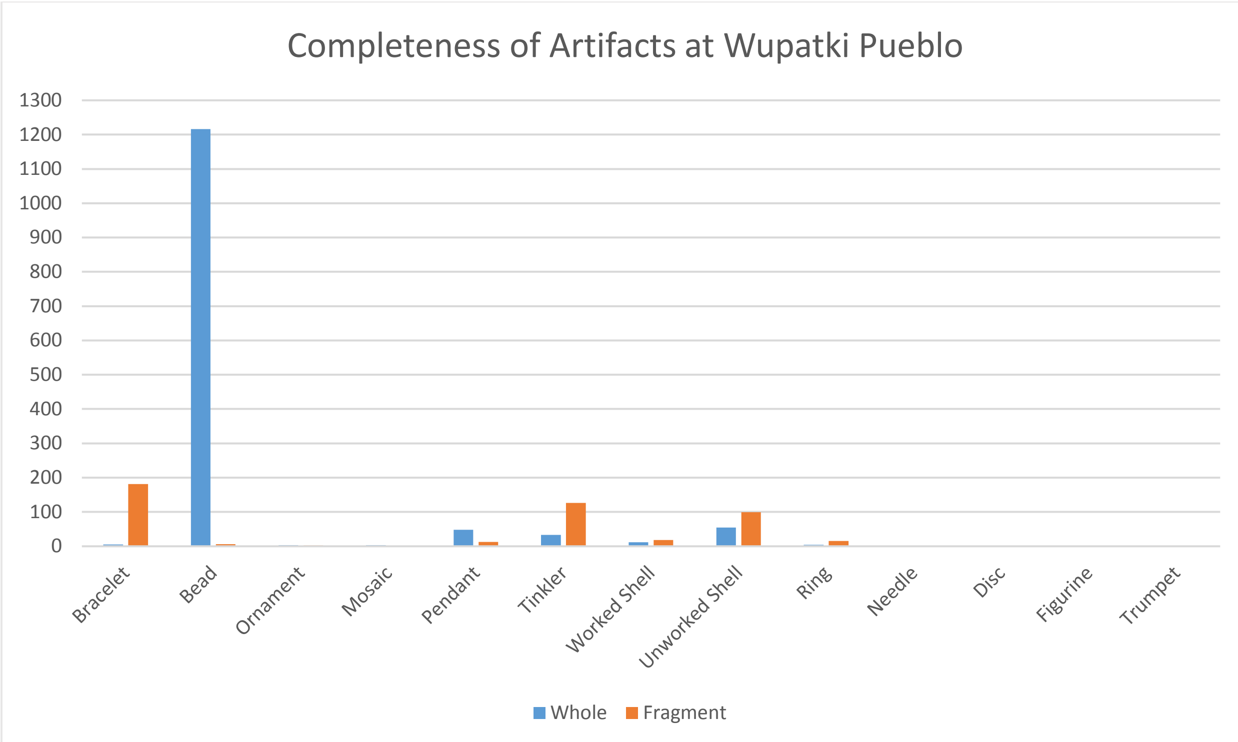


Figure 5.4. Completeness of shell artifact types from Wupatki Pueblo.

Characteristics. The shell assemblage from Wupatki Pueblo exhibits many different characteristics. It consists of burnt, smoothed, polished, incised, and reworked shell.

Out of 1,844 shell artifacts, only six show signs of burning. The burnt shell consists of one *Laevicardium* lizard shaped pendant (Figure 5.5), three *Glycymeris* bracelet fragments (Figure 5.6), and one whole *Glycymeris* bracelet. One of the *Glycymeris* bracelet fragments was found in a room and the rest came from unknown locations. The whole *Glycymeris* bracelet came from an unknown location. The *Laevicardium* pendant came from a trench.

Out of the 1,844 shell artifacts, only six show signs of smoothing. The smoothed shell consists of one unworked *Pecten* shell, one worked *Pecten* shell (Figure 5.7), one *Conus* tinkler, one mosaic *Laevicardium*, and two *Glycymeris* bracelet fragments. All

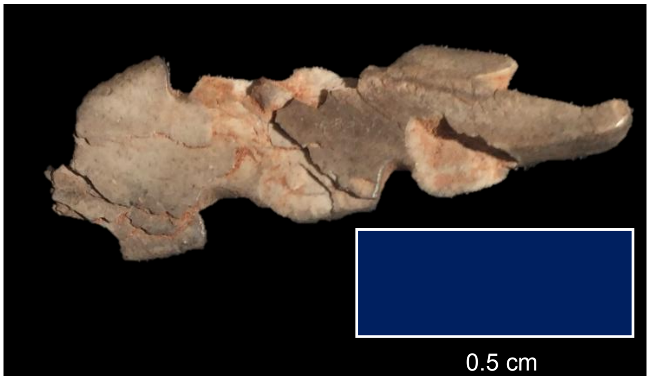


Figure 5.5. WUPA 8084 burnt pendant.

Figure 5.6. WUPA 1235 burnt bracelet.

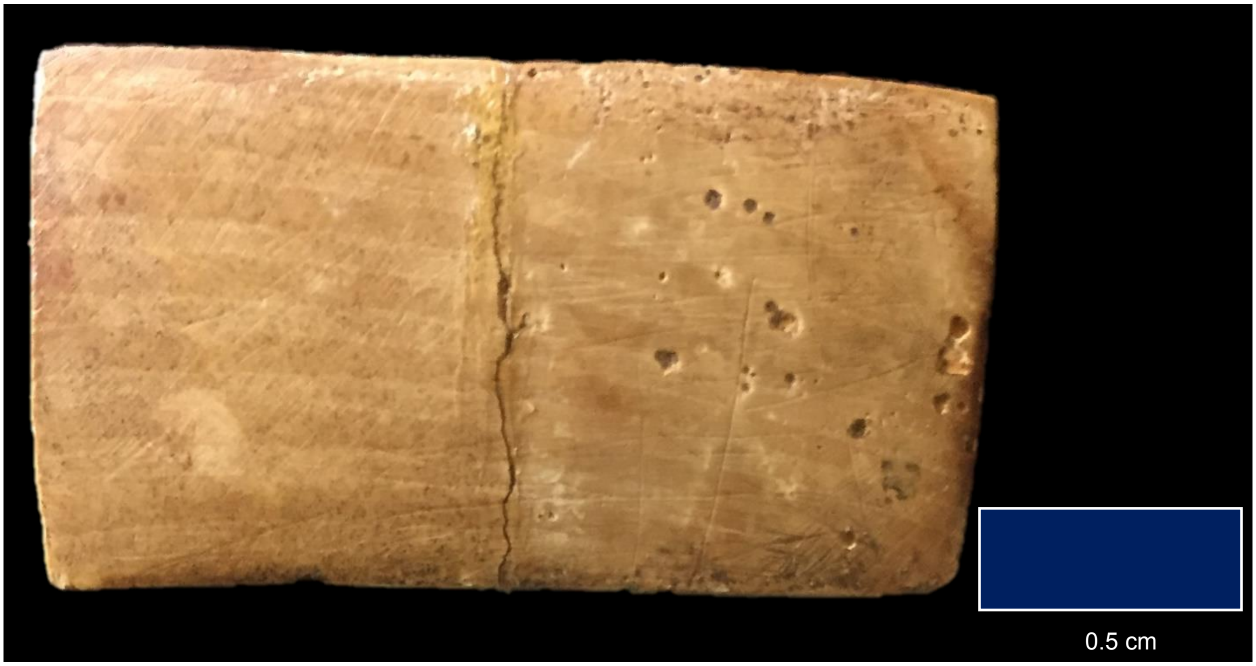


Figure 5.7. WUPA 1197 smoothed worked shell.

were found from unknown locations except for the *Glycymeris* bracelet fragments, which were found on the floor of Room 24.

Four shell artifacts were polished. The polished shell consists of two *Glycymeris* bracelet fragments, one *Glycymeris* ring fragment (Figure 5.8), and one unknown shell pendant fragment. Archaeologists found the *Glycymeris* bracelet fragments in Room 24. The *Glycymeris* ring fragment was found in an unspecified room. The unknown shell pendant has an unknown location.

Figure 5.8. WUPA 16806 polished *Glycymeris* ring fragment.

Twenty-seven shell artifacts show incising. The incised shell consists of 10 *Glycymeris* bracelet fragments (Figure 5.9), four *Conus* tinklers, three *Glycymeris* pendants, three *Glycymeris* ring fragments, two *Pecten* pendants, one *Olivella* worked shell, one *Glycymeris* needle, one *Laevicardium* pendant, one unidentified marine bivalve ornament, and one unknown shell genus pendant. The incised shell artifacts were found in rooms, trenches, trash slopes, room trash, on the surface, and in unknown contexts.

Figure 5.9. WUPA 8526 incised *Glycymeris* bracelet fragment.

Out of 1,844 shell artifacts, 18 show reworking. The reworked shell consists of 14 *Glycymeris* bracelet fragments, one *Glycymeris* needle (Figure 5.10), one *Glycymeris* pendant, one *Glycymeris* worked shell, and one *Conus* tinkler. Archaeologists found the reworked shell in rooms, room trash, trash slope, on the surface, and in unknown contexts.

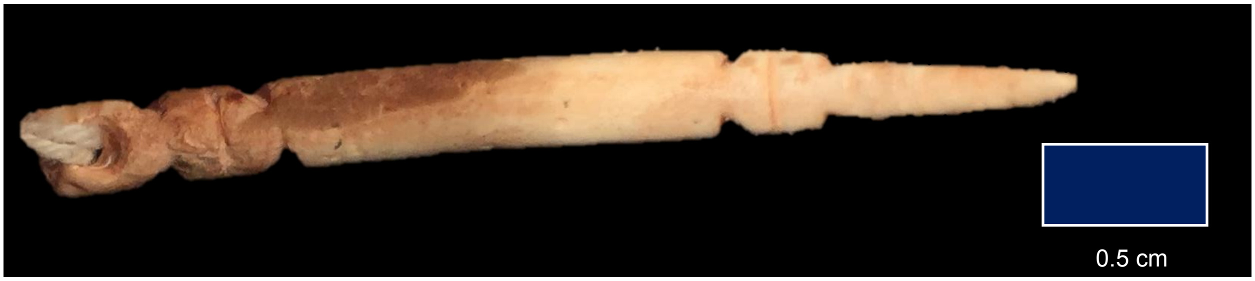


Figure 5.10. WUPA 1594 reworked *Glycymeris* bracelet fragment into a needle.

Location. The shell artifacts from Wupatki Pueblo come from rooms, trenches, trash mounds, retaining walls, room trash, the surface, the amphitheater, and the ballcourt (Figure 5.11). The majority of shell was found from unknown contexts. Where there is a known context, the shell is most likely to be found in rooms. The spatial analysis places shell artifacts into specific rooms in the North and South Units of Wupatki Pueblo. I discuss the spatial analysis more in depth under the section “Spatial Analysis.”

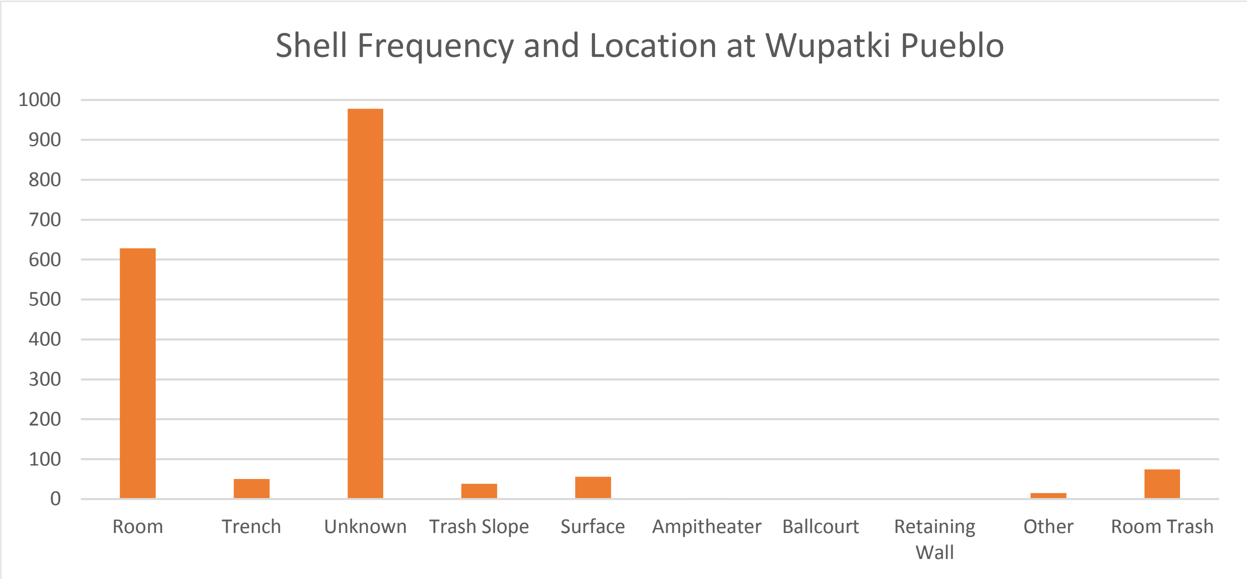


Figure 5.11. Frequency and location of shell artifacts at Wupatki Pueblo.

Additionally, I determined the location of artifacts within Wupatki Pueblo (Figure 5.12). The most common category of shell artifact in rooms is bead with 260 artifacts. The second most common category from rooms are tinklers with 82 artifacts. Tinklers are closely followed by bracelets with 71 artifacts and unworked shell with 61 artifacts.

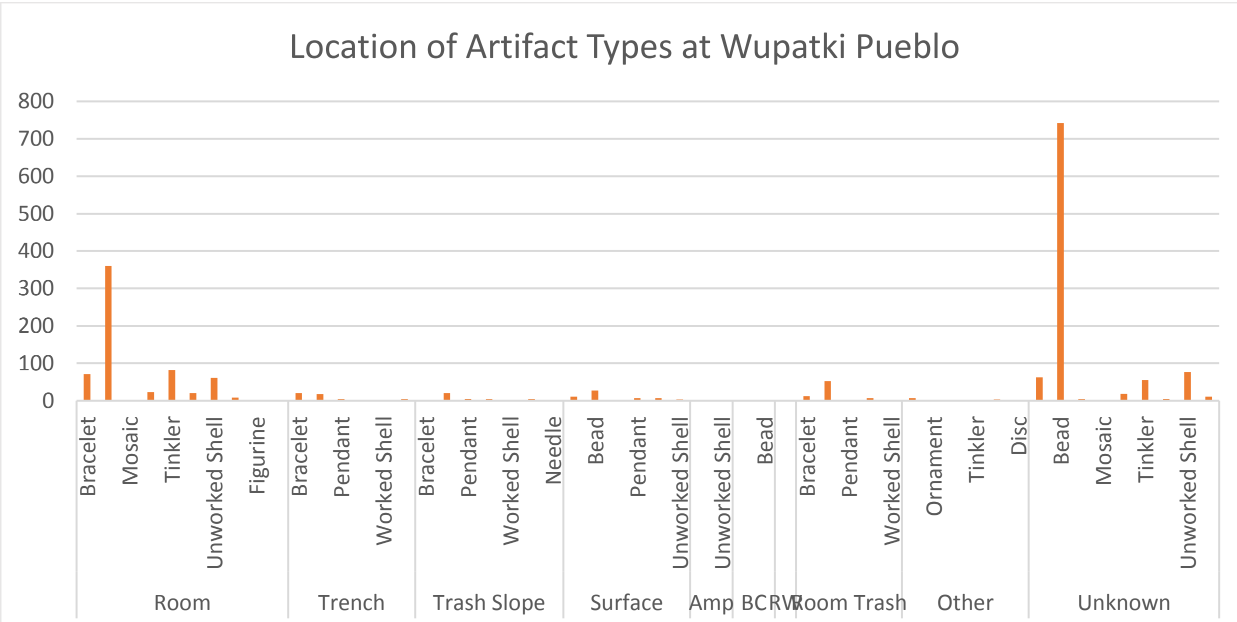


Figure 5.12. Location of artifact types at Wupatki Pueblo.

The most common shell artifacts found in trenches are bracelets and beads. In trash slopes and on the surface, beads are most commonly found. In the amphitheater, ballcourt, and retaining wall there was an equal distribution between artifacts. A bead and an unworked shell were found in the amphitheater, a bracelet and bead were found in the ballcourt, and a bead was found in the retaining wall. In room trash, the artifact type most commonly found is beads. In other locations, consisting of the talus slopes, test holes, behind trail signs, on old highway roadbeds, and near cavates, the most commonly found artifact was bracelets. In locations that did not have context and therefore are unknown, the most common artifact found is beads with 742 artifacts. The second most common artifact found in unknown locations is unworked shell with 77 artifacts.

Lastly, I determined where the shell genera were located within Wupatki Pueblo (Figure 5.13). In rooms, there are *Glycymeris*, *Spondylus*, *Olivella*, *Laevicardium*, *Pecten*, *Conus*, *Turritella*, *Haliotis*, *Dentalium*, *Nassarius*, *Cardium*, *Oreohelix*, *Murex*, *Neritina*, *Anodonta*, *Aequipecten*, a Crinoid fossil, unidentified marine bivalves, and unknown shell. The most prevalent genus found in rooms is *Glycymeris* totaling 181 artifacts. *Olivella* follows *Glycymeris* with a total of 133 artifacts. In trenches, *Glycymeris*, *Spondylus*, *Olivella*, *Laevicardium*, *Pecten*, *Conus*, *Nassarius*, an unidentified gastropod, and unknown shell are present. *Glycymeris* is the most frequent with 23 total artifacts. In trash slopes, *Glycymeris*, *Spondylus*, *Olivella*, *Laevicardium*, *Pecten*, *Conus*, *Spondylus*/*Chama*, *Turritella*, unidentified marine bivalves, and unknown shell are present. *Olivella* is most prevalent with 13 total artifacts. On the surface, there is a presence of *Glycymeris*, *Spondylus*, *Olivella*, *Laevicardium*, *Pecten*, *Conus*, *Turritella*, *Haliotis*, *Nassarius*, *Cardium*, *Clima*, and *Aequipecten*. *Glycymeris* is most prevalent with 13 total artifacts. *Nassarius* follows *Glycymeris* closely with 12 total artifacts. The amphitheater has an even distribution of *Olivella* and *Pecten*. The ballcourt has an even distribution of *Glycymeris* and *Olivella* and the retaining wall has an even distribution of *Olivella*. Room trash contains *Glycymeris*, *Olivella*, *Laevicardium*, *Conus*, and *Spondylus*/*Chama* with *Olivella* being most prevalent. Other locations contain *Glycymeris*, *Laevicardium*, *Pecten*, *Conus*, and an unidentified marine bivalve with *Glycymeris* being the most prominent. For unknown contexts, *Glycymeris*, *Spondylus*, *Olivella*, *Laevicardium*, *Pecten*, *Cowry*, *Conus*, *Naticidae*,

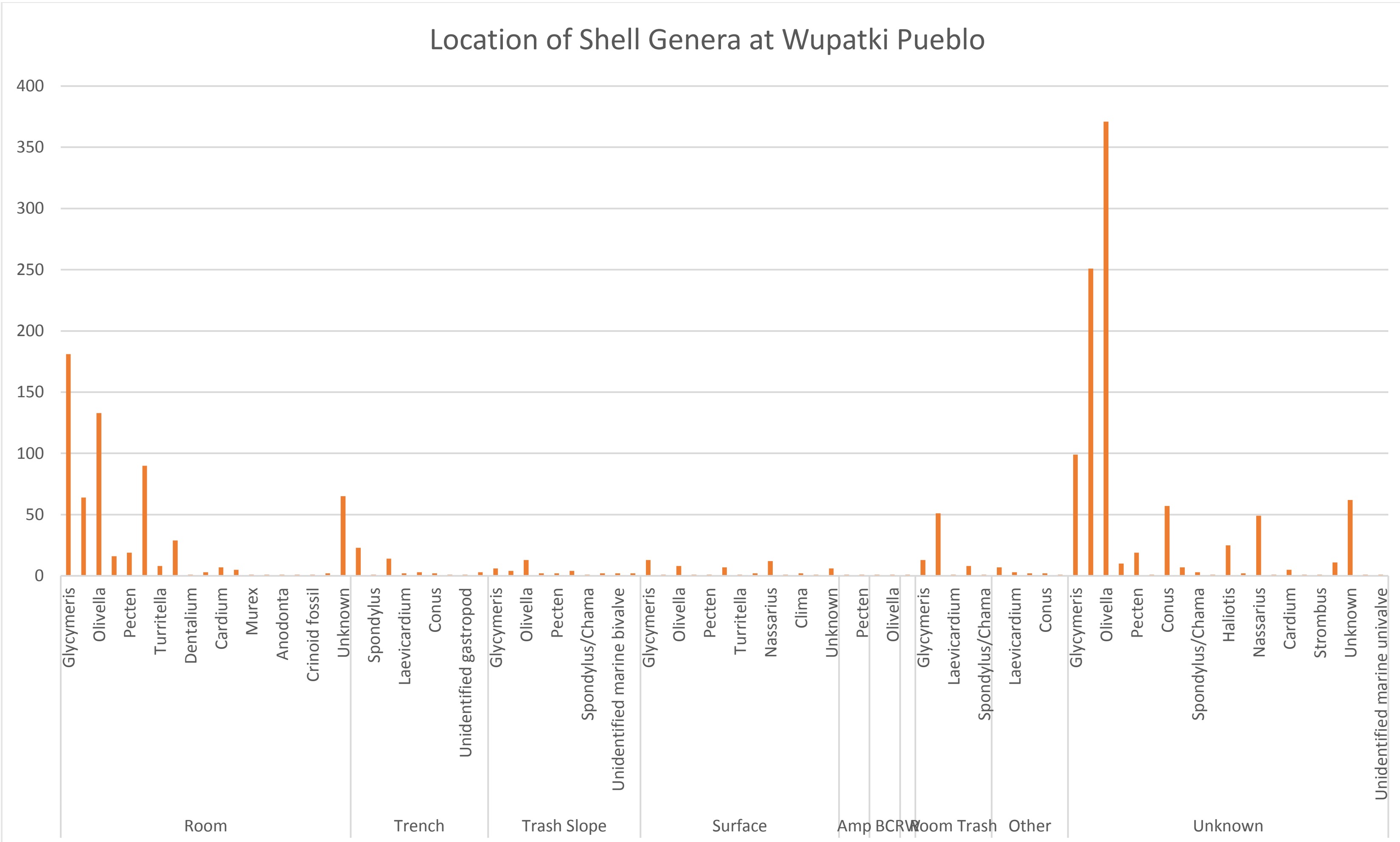


Figure 5.13. Location of shell genera at Wupatki Pueblo.

Spondylus/*Chama*, *Turritella*, *Haliotis*, *Dentalium*, *Nassarius*, *Polinices*, *Cardium*, *Oreohelix*, *Strombus*, unidentified marine bivalve, an unidentified marine univalve, other, and unknown shell are present. *Olivella*, *Spondylus*, and *Glycymeris* are the most prevalent with 371, 251, and 99 artifacts respectively.

Hohokam Influence. The presence of Hohokam influence or Hohokam manufacturing in the shell assemblage from Wupatki Pueblo can be seen through manufacturing techniques and designs. The assemblage consists of figurines, different styles of beads, different designs on bracelets, different designs on tinklers, and different pendant shapes. Hohokam manufacturing techniques are present on 1,115 out of 1,844 shell artifacts from Wupatki Pueblo (Figure 5.14). Of the remaining 729 artifacts, 250 do not exhibit Hohokam manufacturing techniques and 479 are unknown if they exhibit Hohokam manufacturing techniques.

The majority of artifacts that exhibit Hohokam manufacturing techniques are *Olivella* and S*pondylus* beads (Figure 5.15). These can be seen as evidence of disc, tubular, bilobed, and tabular beads, which are Hohokam in style.

The next most prevalent Hohokam style artifact are *Glycymeris* bracelets. Out of 184 *Glycymeris* bracelets, 182 are Hohokam in style. *Glycymeris* bracelets are a signifier of being Hohokam and the high presence of Hohokam style *Glycymeris* bracelets at Wupatki Pueblo indicates a strong Hohokam presence due to migration or trade or a combination of the two. A majority of the *Glycymeris* bracelets are unmodified (Figure 5.16). For modified bracelets, the designs consist of diagonal lines, hatched triangles, and lizard motif (Figure 5.17). Additionally, modifications to the umbos have been made such as carved umbos into frogs and perforated umbos (Figure 5.18).

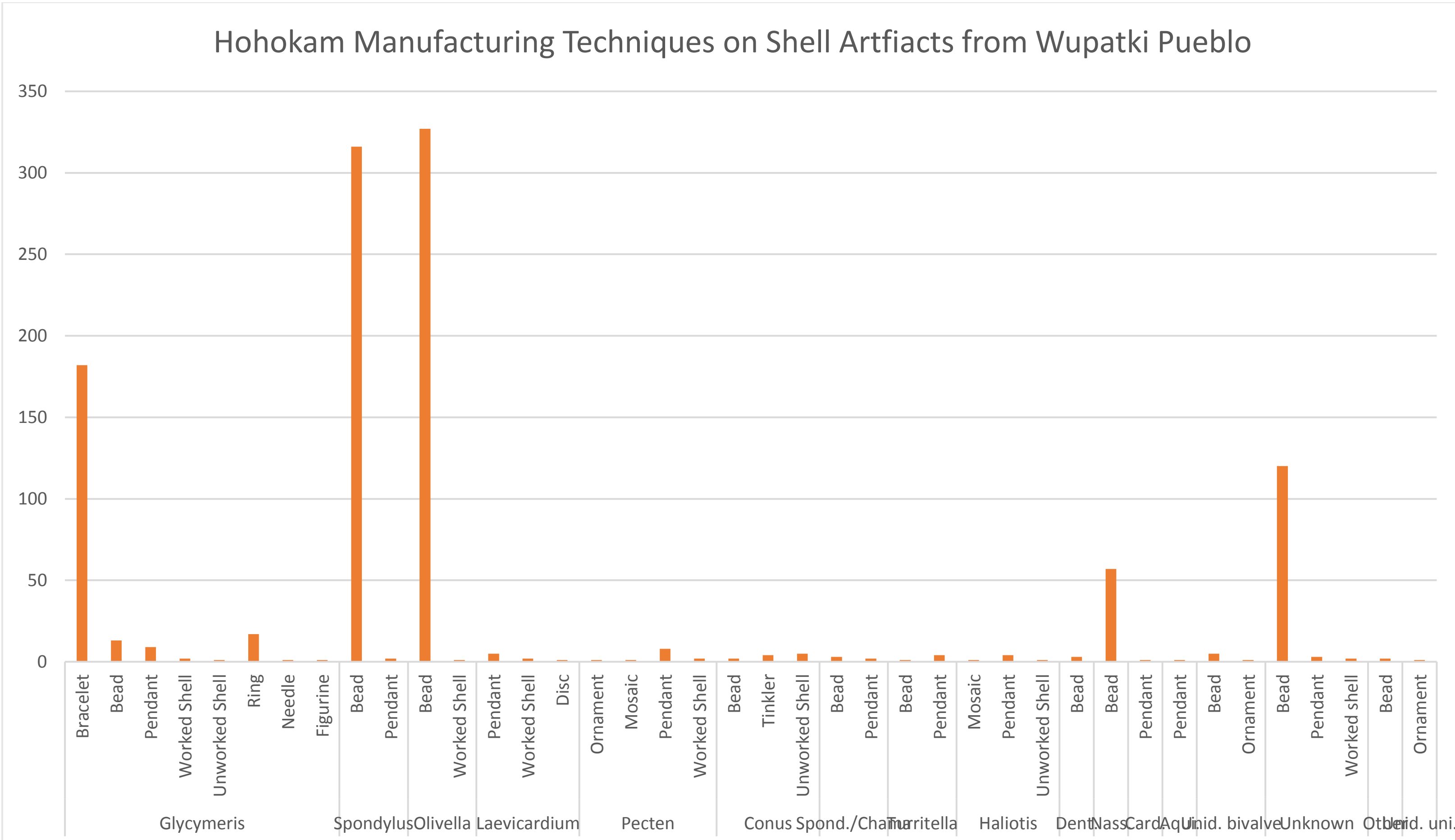


Figure 5.14. Hohokam manufacturing techniques exhibited on shell from Wupatki Pueblo.

Figure 5.15. WUPA 8226 two *Olivella* whole beads, one *Olivella* tubular bead, eight *Spondylus* disc beads, four *Spondylus* bilobed beads, one *Spondylus* tabular bead, and nine *Glycymeris* whole beads.

Figure 5.16. WUPA 8526 unmodified *Glycymeris* bracelet fragment.

Figure 5.17. WUPA 413 incised *Glycymeris* bracelet fragment.

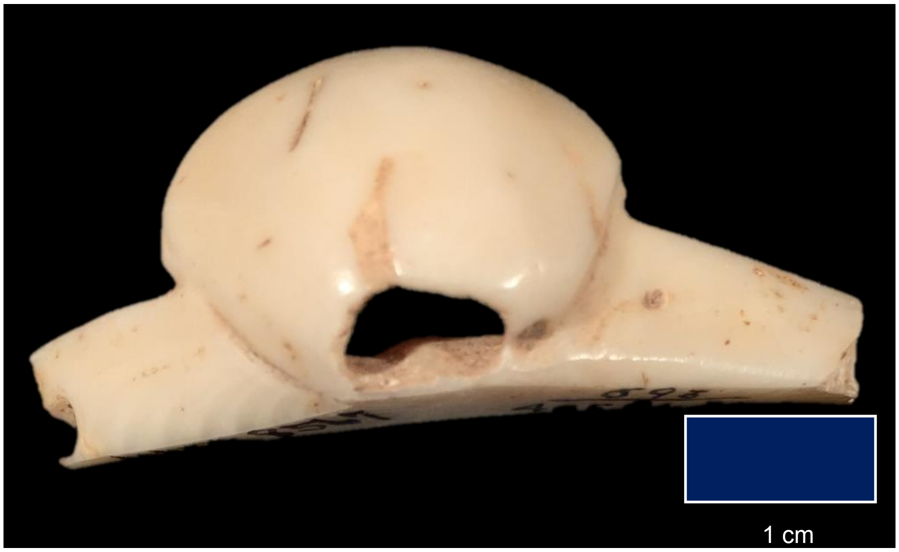


Figure 5.18. WUPA 8567 *Glycymeris* bracelet fragment with a perforated umbo that is possibly carved into a frog.

Figure 5.19. WUPA 474 incised *Conus* tinkler.

In addition to Hohokam style beads and bracelets are tinklers and figurines. The majority of *Conus* tinklers at Wupatki Pueblo are unmodified, but four exhibit incising (Figure 5.19). Figurines depict the forms of humans, lizards, and frogs (Figure 5.20).

Figure 5.20. WUPA 9528 *Glycymeris* frog figurine.

Additionally, pendants found at Wupatki Pueblo differ in shape and exhibit Hohokam style. The pendants at Wupatki Pueblo exhibit oblong, tabular, disc, hook, needle, bilobed, bird, flying bird (Figure 5.21), lizard, rattlesnake (Figure 5.22), sunburst (Figure 5.23), and phallic shapes. Seven out of 61 pendants show incising. Because pendants are very distinct to time periods, the pendants indicate that the shell from Wupatki Pueblo is contemporaneous to the Hohokam Colonial, Sedentary, and Classic periods. Wupatki Pueblo is almost entirely contemporaneous with the Classic period although there are deposits that date to the Colonial and Sedentary periods. This would indicate that the Hohokam style shell at Wupatki Pueblo ranged from A.D. 750 to A.D.

Figure 5.21. WUPA 552 *Cardium* flying bird pendant.

Figure 5.22. WUPA 1680 unknown shell genus rattlesnake pendant.

Figure 5.23. WUPA 5126 *Glycymeris* sunburst pendant.

1450, which is contemporaneous with the Ancestral Puebloan chronology of Pueblo I to Pueblo IV, which ranges from A.D. 750 to A.D. 1400. Since Wupatki Pueblo was occupied from A.D. 900 to A.D. 1275, the Hohokam style shell artifacts would fit into the appropriate range of late Colonial, Sedentary, and early to middle Classic periods in Hohokam chronology. Since the date ranges do correlate, this provides an even stronger explanation that Hohokam influence through trade, migration, or both occurred at Wupatki Pueblo.

Spatial Analysis. I conducted a spatial analysis to determine where shell artifacts were located in the North and South Units of Wupatki Pueblo with greater accuracy. I conducted a spatial analysis for shell genera and artifact types in both the North and South Units. The location where shell is the most prominent was determined. In addition, a determination of which shell genera and artifact types were found most often together was made.

The North Unit of Wupatki Pueblo is the smaller unit of the two. The North Unit consists of 20 rooms: 1-19 and 21. Rooms 1 through 19 are located on the sandstone ledge of the Moenkopi Formation. Room 21 is located below the sandstone ledge. From looking at wall bonds and abutment patterns, Room 1 seems to be the first room built. Shell is present in Rooms 3, 7, 10, 12, and 15. Room 7 contains the most shell artifacts with 97 total artifacts. Room 15 follows Room 7 with 55 total artifacts. The majority of shell is clustered in the central rooms of the North Unit: Rooms 7, 10, 12, and 15. This could indicate a specific shell consumer area, but it is unknown since a large quantity of shell is also present in Room 3 and the amphitheater.

By using the prestige model of exchange, there should be a higher concentration of shell artifacts in elite areas and a lower concentration of shell artifacts in non-elite areas because elites controlled prestige goods. In the North Unit of Wupatki Pueblo, there is a higher concentration of shell present in Rooms 3, 7, 10, 12, and 15. Rooms 7, 10, 12, and 15 are all located in the same general vicinity and all abut one another, which could indicate an elite area. What is also interesting to note is that the rooms with the lowest concentration of shell artifacts and no shell artifacts are mostly clustered to the east and north of the rooms with the highest concentration of shell. This could indicate a power dynamic between the elites and the commoners based on where shell artifacts were recovered.

There is also the potential that instead of the shell representing elite areas, it could represent refuse trash. High concentrations of shells in certain rooms could indicate the deconsecration of used up shell objects (Walker 1995). This could explain why shell is prevalent in some rooms and not prevalent in other rooms.

In the North Unit, there are nine shell genera present (Figure 5.24): *Cardium*, *Conus*, *Dentalium*, *Glycymeris*, *Haliotis*, *Olivella*, *Pecten*, *Spondylus*, and *Turritella*. There is also shell of unknown genus. The most prevalent shell is *Glycymeris* with 98 artifacts. The second most prevalent is *Olivella* with 57 artifacts. The greatest amount of *Glycymeris* artifacts are found in Room 7 with 85 total artifacts. The greatest amount of *Olivella* artifacts are found in Room 15 with 51 total artifacts. In three out of the five rooms containing shell artifacts in the North Unit, Rooms 3, 10, and 12, *Glycymeris* and *Olivella* are found together. This indicates that there is a 60 percent chance that *Glycymeris* and *Olivella* will be found together in the North Unit.

In the North Unit, there are seven artifact types present (Figure 5.25): bead, bracelet, mosaic inlay, pendant, tinkler, worked shell, and unworked shell. The most prevalent artifacts are beads with 144 total artifacts. The second most prevalent artifacts are bracelets with 12 total artifacts. The greatest amount of beads are located in Room

7 with 85 total artifacts. The greatest amount of bracelets are found in Room 7 with seven total artifacts. In three out of five rooms, Rooms 7, 10, and 12, beads and bracelets are found together, which indicates that there is a 60 percent chance that beads and bracelets will be found together in the North Unit.

Although not part of the North Unit, Room 66, also known as the Amphitheater, is shown in Figures 5.24 and 5.25. The Amphitheater contains 56 shell artifacts. The Amphitheater contains seven shell genera: *Conus*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Olivella*, *Pecten*, and *Spondylus*. It also contains shell of unknown genus. *Conus* is the most prevalent with 24 total artifacts. *Olivella* follows *Conus* with nine total artifacts, *Haliotis* follows *Olivella* with six total artifacts, and *Glycymeris* follows *Haliotis* with five total artifacts. The Amphitheater contains seven different shell artifact types: bead, bracelet, pendant, ring, tinkler, unworked shell, and worked shell. Tinklers are the most prevalent with 24 total artifacts. Following tinklers are beads with 13 total artifacts and unworked shell with 11 total artifacts.

The South Unit of Wupatki Pueblo is the larger unit of the two. It is also more complex than the North Unit. The South Unit consists of 58 rooms: 20, 23-41, 41B1, 41B, 42-62, 62B, 63, 64, 68-75, and 80-83. People originally built the rooms in the South Unit out horizontally and then upwards vertically. Many of the rooms were repurposed by filling them in with trash and then rebuilding. From previous archaeological research, it looks as if Rooms 24, 39, 58, 71, and 73 were the earliest core rooms. Shell is present in Rooms 24-28, 30, 34-36, 38-41, 44, 45, 47, 51, 55-59, 62, 63, 68, 71, 73, 80, 81, and 83. Room 25 contains the most shell artifacts with 106 total artifacts. Room 73 follows Room 25 with 82 total artifacts. Following Room 73 are

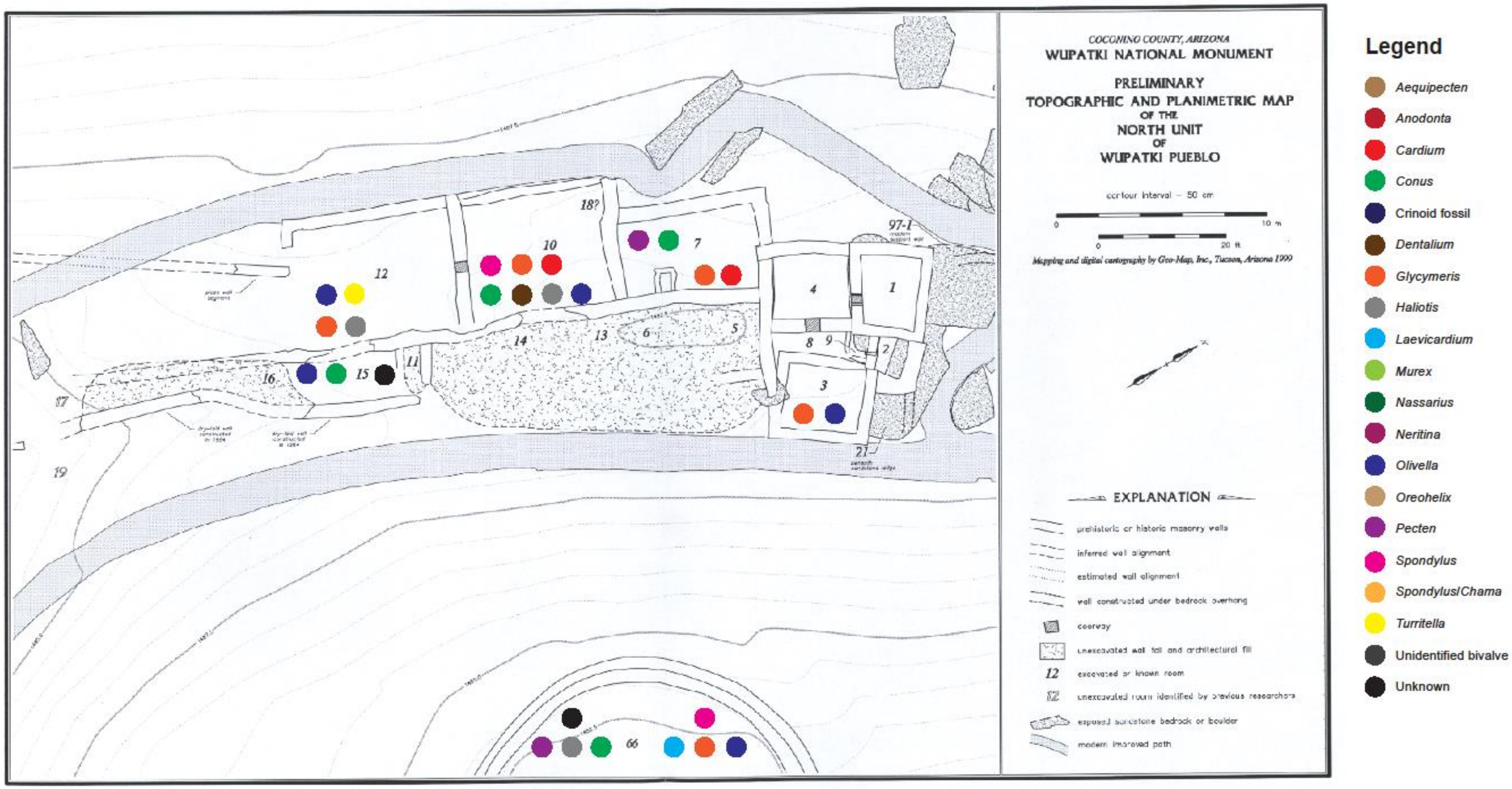


Figure 5.24. North Unit of Wupatki Pueblo spatial analysis based on genera.

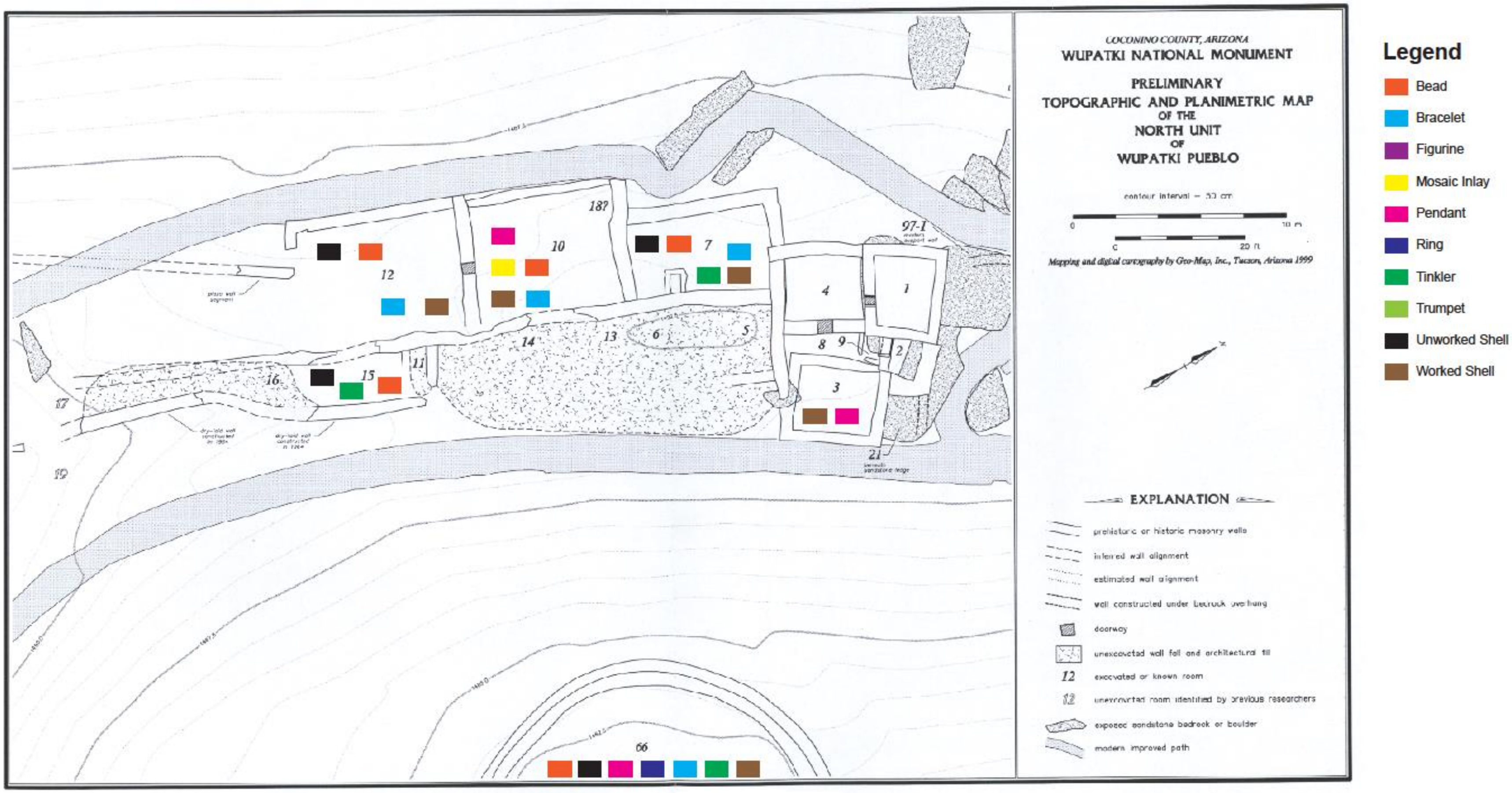


Figure 5.25. North Unit of Wupatki Pueblo spatial analysis based on artifact types.

Rooms 24, 27, and 80. Room 80 contains 63 artifacts, Room 24 contain 54 artifacts, and Room 27 contains 37 artifacts. The shell is generally spread out throughout the South Unit and does not indicate any discernable consumer patterns.

By using the prestige model of exchange, there should be a higher concentration of shell artifacts in elite areas and a lower concentration of shell artifacts in non-elite areas because elites controlled prestige goods. In the South Unit of Wupatki Pueblo, there is a higher concentration of shell present in Rooms 24, 25, 27, and 80. These four rooms are all located in the same general vicinity, which could indicate a concentration of elite rooms. What is also interesting to note is that the rooms with the lowest concentration of shell artifacts and no shell artifacts are mostly clustered to the west of the rooms with the highest concentration of shell. This could indicate a power dynamic between the elites and the commoners based on where shell artifacts were recovered.

In the South Unit, there are 17 shell genera present (Figure 5.27): *Aequipecten*, *Anodonta*, *Cardium*, Crinoid fossil, *Conus*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Murex*, *Nassarius*, *Neritina*, *Olivella*, *Oreohelix*, *Pecten*, *Spondylus*, *Spondylus*/*Chama*, and *Turritella*. There are also two unidentified shell genera: unidentified bivalve and unknown genus. The most prevalent shell is *Olivella* with 113 artifacts. The second most prevalent is *Glycymeris* with 96 artifacts. Following *Glycymeris* is *Conus* with 63 artifacts, unknown shell genus with 62 artifacts, *Spondylus* with 60 artifacts, *Haliotis* with 20 artifacts, *Pecten* with 18 artifacts, and *Laevicardium* with 15 artifacts. The greatest amount of *Olivella* artifacts are found in Room 25 with 43 total artifacts. The largest number of *Glycymeris* artifacts are present in Room 73 with 24 total artifacts. The greatest amount of *Conus* artifacts are found in Room 80 with 14 total artifacts. The largest number of unknown shell is located in Room 25 with 52 total artifacts. The greatest amount of *Spondylus* is located in Room 24 with 42 total artifacts. The greatest amount of *Haliotis* is located in Room 39 with six total artifacts. The greatest amount of *Pecten* is located in Room 27 with six total artifacts and the greatest amount of *Laevicardium* is located in Room 73 with eight total artifacts.

In 12 out of 30 rooms in the South Unit, Rooms 24, 27, 30, 35, 39, 51, 55, 58, 63, 73, 80, and 81, *Glycymeris* and *Conus* are found together. This indicates that there is a 40 percent chance that *Glycymeris* and *Conus* are found together in the South Unit. In 11 out of 30 rooms, Rooms 24, 27, 28, 35, 39, 40, 55, 59, 62, 73, and 80, *Glycymeris* and *Olivella* are found together. This indicates that there is a 36.7 percent chance that *Glycymeris* and *Olivella* will be found together. In nine out of 30 rooms, Rooms 24, 25, 27, 35, 39, 55, 59, 73, and 80, *Olivella* and *Conus* are found together. This indicates that there is a 30 percent chance that *Olivella* and *Conus* will be found together in the South Unit.

In the South Unit, there are nine artifact types present (Figure 5.28): bead, bracelet, figurine, pendant, ring, tinkler, trumpet, unworked shell, and worked shell. The most prevalent artifacts are beads with 259 total artifacts. The second most prevalent artifacts are bracelets with 67 total artifacts. Following bracelets are tinklers with 61 total artifacts and unworked shell with 46 total artifacts. The greatest amount of beads are found in Room 25 with 95 total artifacts. The greatest amount of bracelets are found in Room 80 with 11 total artifacts. The greatest amount of tinklers are found in Room 80 with 14 total artifacts and the greatest amount of unworked shell is found in Room 73 with eight total artifacts. In 12 out of 30 rooms, Rooms 24, 27, 28, 35, 39, 40, 44, 55, 59, 62, 73, and 80, beads and bracelets are found together. This indicates that there is a 40 percent change that beads and bracelets will be found together in the South Unit. What is interesting to note in the South Unit is the presence of a *Murex* trumpet (Figures 5.26) and a *Glycymeris* frog figurine. Archaeologists recovered the *Murex* trumpet in Room 63 along with bracelets, tinklers, unworked shell, and worked shell. Unfortunately, little is known about Room 63 due to the friable conditions of the walls. Archaeologists never fully excavated the room and instead reconstructed the room in 1933 and 1934 to provide living quarters for Wupatki National Monument's custodian (Brennan and Downum 2001). The *Glycymeris* frog figurine was located in Room 51 along with tinklers and beads. The presence of these significant shell objects could indicate elite areas.

Figure 5.26. WUPA 10766 *Murex* trumpet.

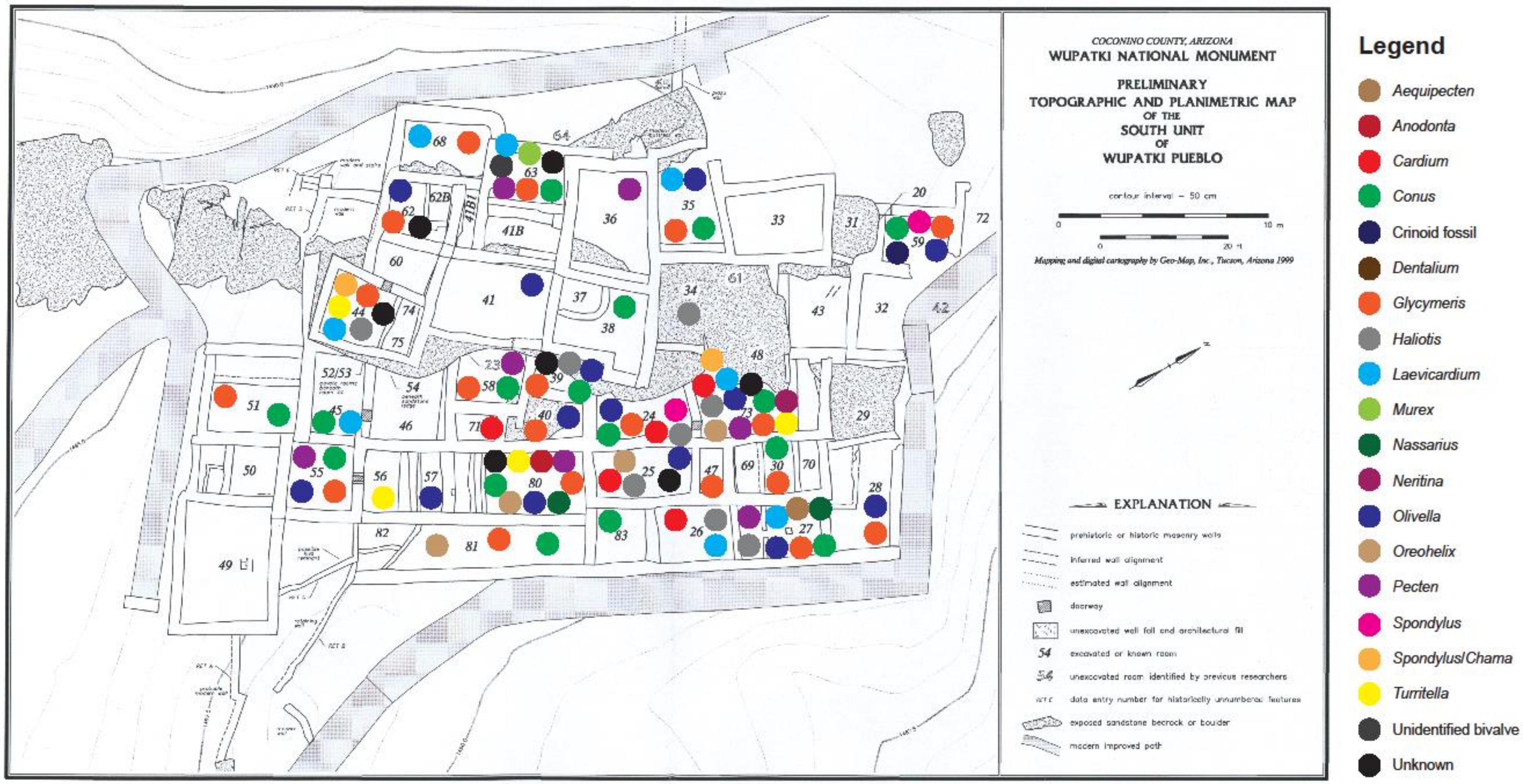


Figure 5.27. South Unit of Wupatki Pueblo spatial analysis based on genera.

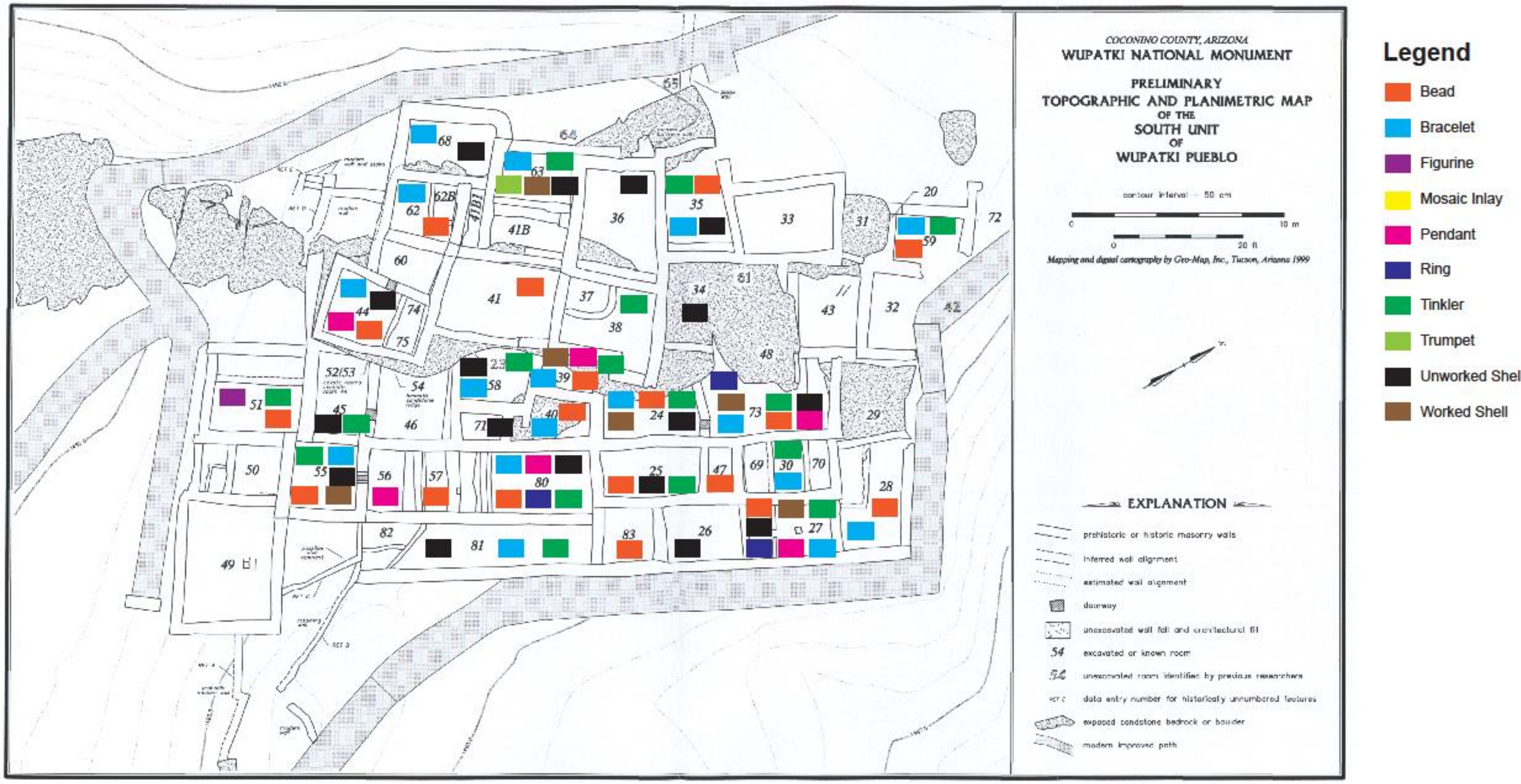


Figure 5.28. South Unit of Wupatki Pueblo spatial analysis based on artifact types.

Elden Pueblo

The shell assemblage from Elden Pueblo consists of 1,308 shell artifacts from 882 occurrences. The shell assemblage consists of 21 different genera and 14 different types of artifacts. The completeness ranges from fragmented to whole. There is evidence of burnt, polished, incised, and reworked shell. Within the site, the artifacts were found in pueblos, pithouses, kivas, rooms, burials, burial pits, walls, trenches, trash mounds, and unknown locations.

Shell Genera. The shell assemblage from Elden Pueblo consists of 21 different genera (Figure 5.29): *Anodonta*, *Conus*, *Cardium*, *Cerithidea*, *Cockle*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Nassarium*, *Nerita*, *Oliva*, *Olivella*, *Pecten*, *Pyrene*, *Rumina*, *Spondylus*, *Spondylus*/*Chama*, *Turritella*, *Trachycardium*, and *Trivia*. In addition, there were three categories of shell that could be identified, but not by genus: fossilized shell, freshwater clam, and freshwater snail. In addition, there were three categories of unknown shell: unknown bivalve, unknown univalve, and unknown. *Olivella* is the most prevalent with 586 total artifacts. Following *Olivella* is *Glycymeris* with 234 total artifacts and *Laevicardium* with 137 total artifacts.

Artifact Types. The shell assemblage from Elden Pueblo consists of 14 different artifact types (Figure 5.30): beads, beads/pendants, bracelets, bracelets/pendants, debitage, fossils, pendants, pendants/rings, rings, tinklers, utility, worked, unworked, and unknown. The majority of shell artifacts are beads with 633 total artifacts. Beads are followed by unknown artifacts with 244 total artifacts and bracelets with 169 total artifacts.

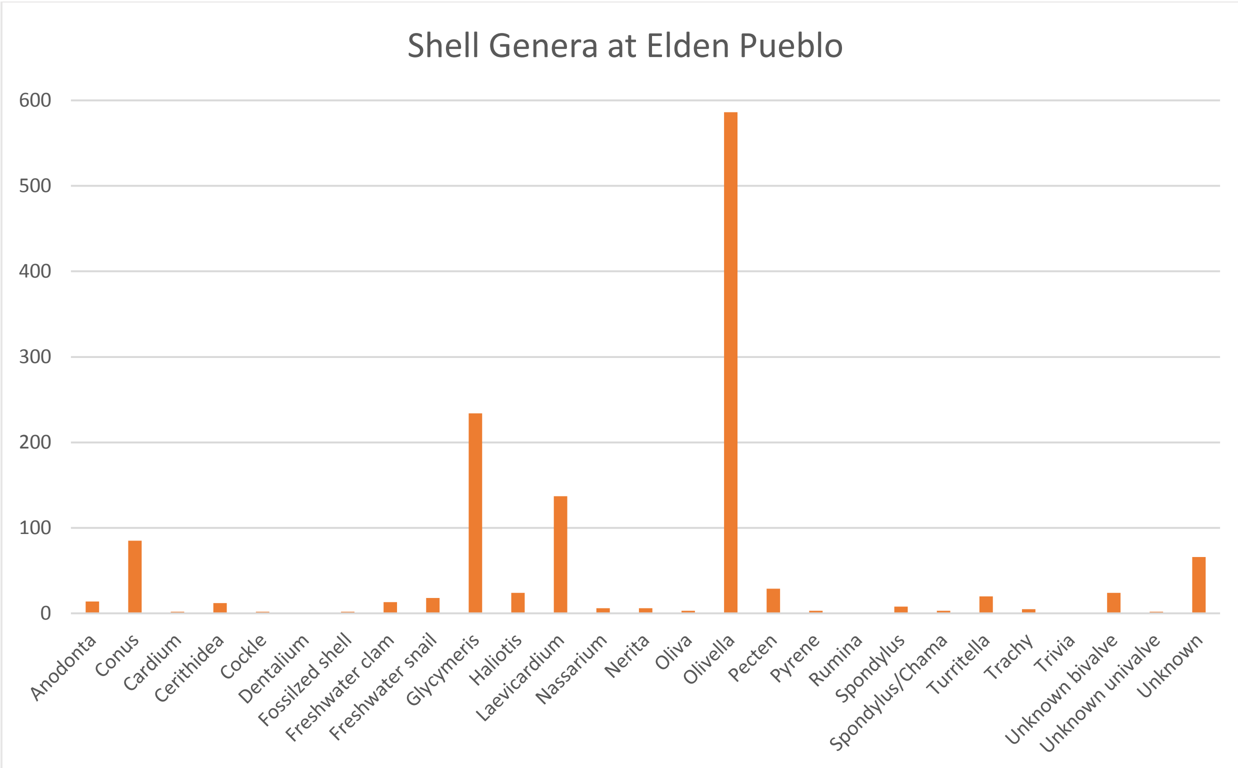


Figure 5.29. Shell genera at Elden Pueblo.

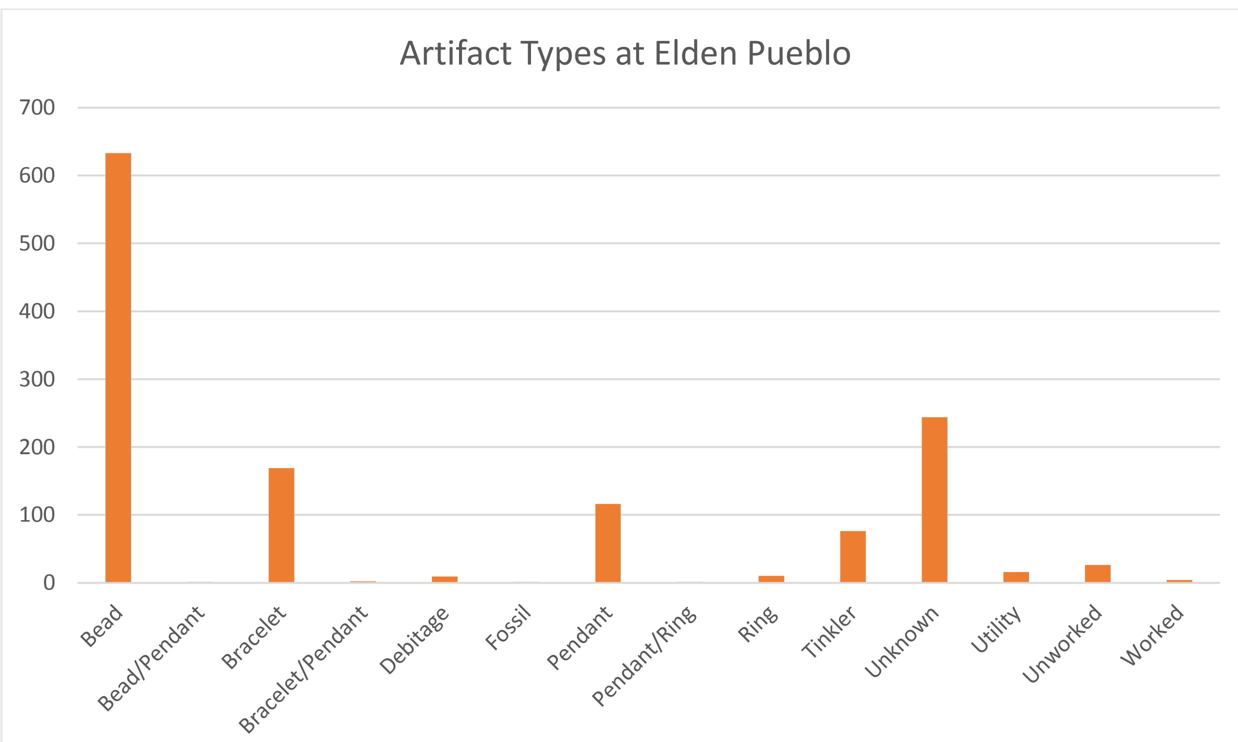


Figure 5.30. Artifact types at Elden Pueblo.

There are differences in shell genera within each artifact category (Figure 5.31). Beads were made from *Anodonta*, *Cerithidea*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Nassarium*, *Nerita*, *Oliva*, *Olivella*, *Pyrene*, *Rumina*, *Spondylus*, *Spondylus*/*Chama*, *Trivia*, unknown bivalves, unknown univalves, and unknown shell. *Olivella* is the most frequently used genus for beads with 566 total artifacts. Archaeologists only recovered one bead/pendant made from *Laevicardium*. Bracelets were made from *Glycymeris* and unknown shell with *Glycymeris* being the most prevalent with 141 total bracelets (Figure 5.32). There are two bracelets/pendants with one made of *Glycymeris* and the other made of unknown shell. Archaeologists only recovered one fossilized shell. Pendants were made of *Haliotis*, *Cerithidea*, *Conus*, freshwater clams, freshwater snails, *Glycymeris*, *Laevicardium*, *Nassarium*, *Nerita*, *Oliva*, *Olivella*, *Pecten*, *Spondylus*, *Spondylus*/*Chama*, *Turritella*, unknown bivalves, and unknown shell. *Glycymeris* is the most frequently used shell for pendants with 35 total pendants followed by *Laevicardium* with 19 total pendants (Figure 5.33). Archaeologists recovered one pendant/ring made of *Glycymeris*. Rings found were made of *Glycymeris* and unknown shell. All 76 tinklers found were made from *Conus*. Utility shell was manufactured from *Dentalium*, *Glycymeris*, *Laevicardium*, *Pecten*, and unknown bivalves. Worked shell was manufactured from *Conus*, freshwater snail, *Glycymeris*, and *Olivella* with one worked piece of shell for each genera. Unworked shell consists of *Cerithidea*, freshwater snail, *Glycymeris*, *Laevicardium*, *Olivella*, *Pecten*, and *Turritella* with *Laevicardium* being the most prevalent. Unknown artifacts were made of all of the shell genera present except for *Dentalium* and *Rumina*.

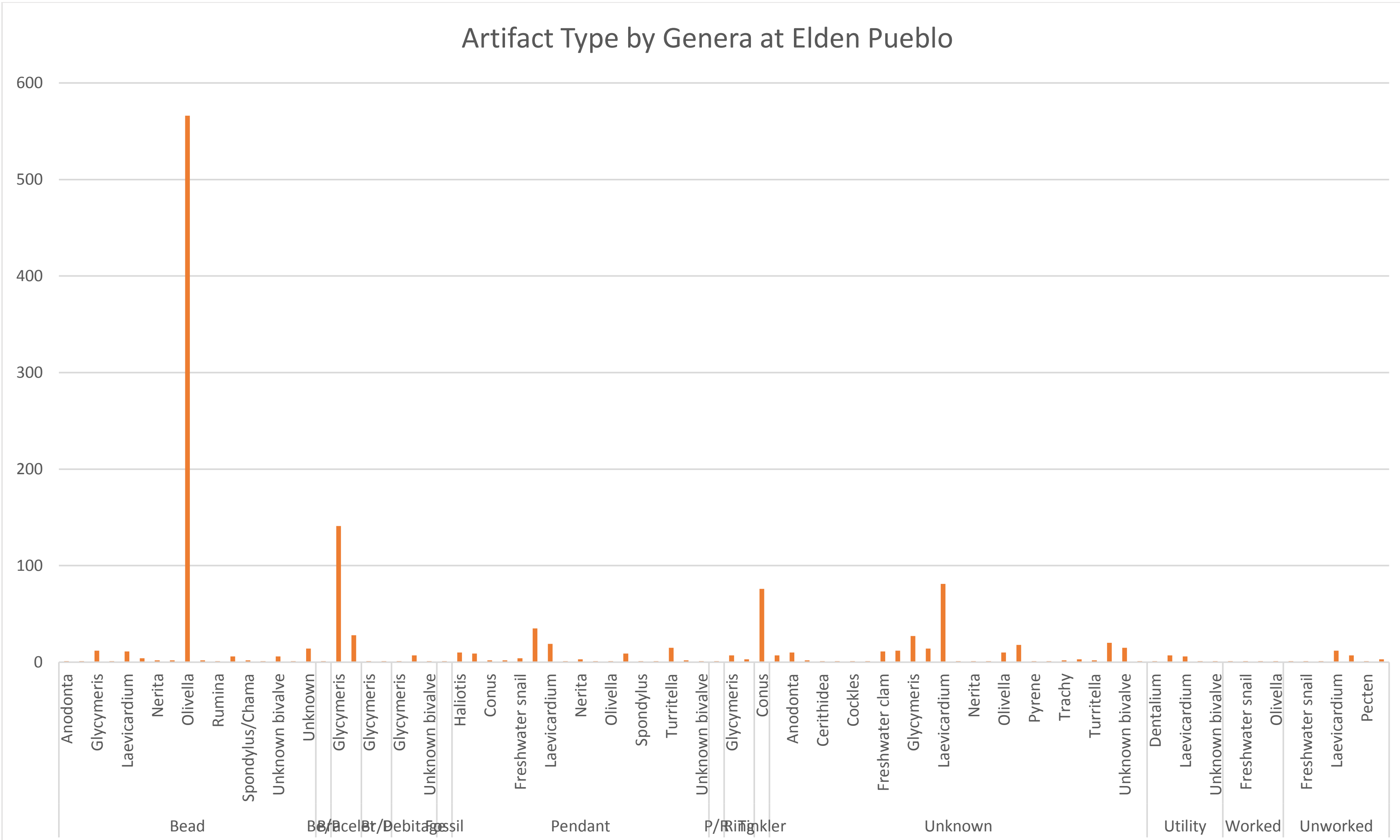


Figure 5.31. Artifact types by genera at Elden Pueblo.

Figure 5.32. N18W2.5 *Glycymeris* bracelet.

Figure 5.33. N20E07.1 *Laevicardium* frog pendant.

The presence of debitage at Elden Pueblo is interesting to note. Debitage found consists of *Glycymeris*, *Laevicardium*, and unknown bivalves. The presence of debitage at Elden Pueblo is significant because archaeologists did not recover any debitage from Wupatki Pueblo and the other Sinagua sites, yet archaeologists did recover debitage from the Hohokam sites. This strongly suggests that minimal shell manufacturing occurred at Elden Pueblo.

Completeness. The shell artifacts from Elden Pueblo are either whole or fragmented (Figure 5.34). In nine out of 14 cases, including beads, beads/pendants, bracelets, bracelets/pendants, debitage, fossils, pendants, utility, and unknown shell, there are more fragments present than whole objects. In five out of 14 cases, including pendants/rings, rings, tinklers, unworked shell, and worked shell, there are more whole objects than fragments. The most commonly found whole objects are unknown artifacts. The most commonly found fragmented objects are beads, bracelets, unknown artifacts, and pendants.

Characteristics. The shell assemblage from Elden Pueblo exhibits many different characteristics. It consists of shell that is burnt, polished, incised, and reworked. It does not include any smoothed shell.

Out of 1,308 shell artifacts, 32 show signs of burning. The burnt shell consists of three *Conus* tinklers, one *Glycymeris* ring, 10 *Glycymeris* bracelets, four unknown bivalve beads, three unknown artifacts made of *Laevicardium*, two *Olivella* beads, two *Pecten* pendants, one unknown object manufactured from *Pecten*, one utility artifact from *Pecten*, one *Rumina* bead, one *Laevicardium* disc, one *Glycymeris* pendant, one *Oliva* utility artifact, one *Laevicardium* utility object, and one unknown shell bracelet.

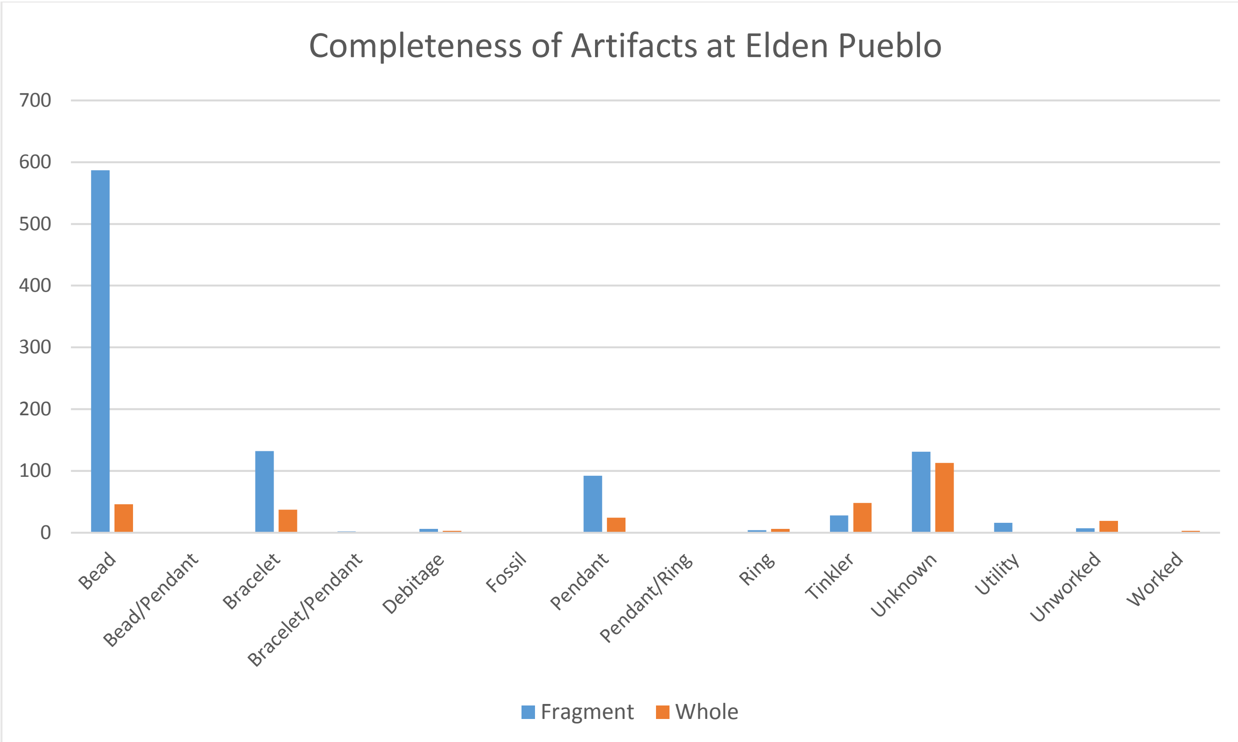


Figure 5.34. Completeness of artifacts at Elden Pueblo.

These artifacts were found in rooms, pueblos, pithouses, burials, burial pits, kivas, floor fill, fill, and on the surface.

One hundred twelve shell artifacts were polished. The polished artifacts consist of tinklers, beads, pendants, bracelets, rings, utility objects, and unknown artifacts made of *Conus*, *Olivella*, *Cerithidea*, *Glycymeris*, *Laevicardium*, *Olivella*, *Pecten*, *Cockle*, *Cardium*, *Nerita*, unidentified bivalves, and unknown shell. These artifacts were located in rooms, pithouses, burials, fill, floor fill, and on the surface.

Sixteen shell artifacts show incising. The incised artifacts include eight *Conus* tinklers, one *Nassarium* bead, four *Olivella* beads, one unknown artifact made of unknown shell, one unknown artifact made of *Laevicardium*, and one unworked *Spondylus* shell. The artifacts were found on the surface, on the subfloor, and in unknown locations.

Twenty-eight artifacts show evidence of reworking. These include tinklers, pendants, utility objects, bracelets, bracelets/pendants, and unknown artifacts made of *Conus*, *Glycymeris*, *Laevicardium*, and unknown shell. These artifacts were located in rooms, trenches, kivas, pueblos, pithouses, fill, wall fall, and unknown locations.

Location. At Elden Pueblo, shell was found in pueblos, pithouses, kivas, rooms, burials, burial pits, walls, trenches, trash mounds, and unknown locations. Within these locations, archaeologists found shell in specific contexts such as the surface, fill, floor, wall fall, subfloor, wall slough, pit fill, and unknown contexts. The majority of shell was found in unknown locations and unknown contexts. For the shell artifacts with location attributes and context, the majority of this shell was found in the fill of rooms. Within these rooms, *Olivella* beads and *Glycymeris* bracelets were the most prevalent.

Ridge Ruin

The shell assemblage from Ridge Ruin consists of 237 shell artifacts from four sites. The assemblage consists of nine different genera and 11 different types of artifacts. The completeness ranges from fragmented to whole. There is evidence of burning and incising shell, but there is no indication of smoothing, polishing, or reworking shell. Within the sites, the artifacts were found within burials, cremations, pithouses, hearths, room fill, room trash, and trash.

Shell Genera. The shell from Ridge Ruin consists of nine different genera (Figure 5.35): *Anodonta*, *Argopecten*, *Conus*, *Glycymeris*, *Haliotis*, *Olivella*, *Ostrea*, *Pecten*, and *Spondylus*/C*hama*. Additionally, there was one category that could not be identified specifically: unidentifiable shell. The majority of shell found at Ridge Ruin is *Glycymeris* with 109 total artifacts. Following *Glycymeris* is *Olivella* with 84 total artifacts.

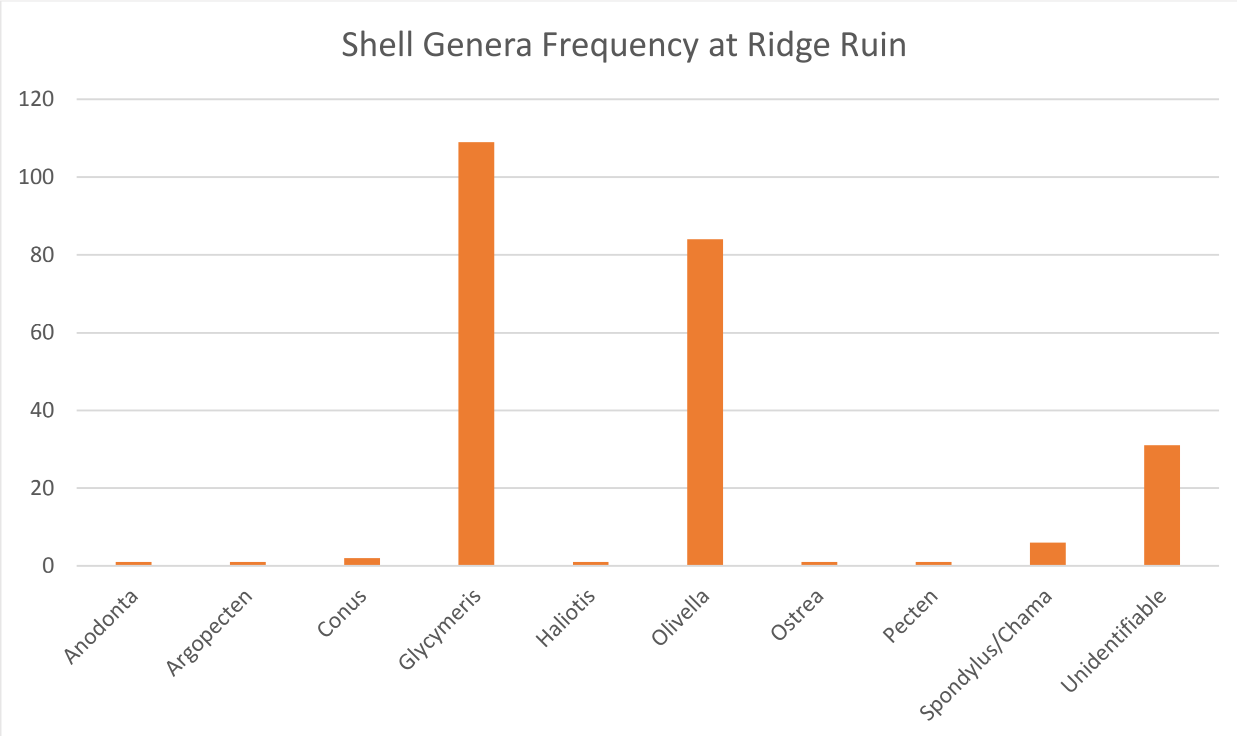


Figure 5.35. Frequency of shell genera at Ridge Ruin.

Artifact Types. The shell assemblage from Ridge Ruin consists of 11 different artifact types (Figure 5.36): bead/pendant, bead, bracelet, bracelet/pendant, inlay, pendant, ring, tessera, tinkler, unworked, and worked. The majority of shell artifacts are beads with a total of 117 artifacts. Following beads are bracelets with 72 artifacts.

There are differences in shell genera within each artifact category (Figure 5.37). Beads/pendants were made of *Glycymeris* or *Spondylus*/*Chama*. Beads were made of *Olivella*, *Spondylus*/*Chama*, and unidentifiable shell. *Olivella* was the most prevalent with 84 artifacts. Bracelets, bracelets/pendants, and rings were solely made out of *Glycymeris* totaling 72, 22, and three artifacts respectively. Archaeologists found one inlay made of *Conus*. Pendants were made of *Argopecten*, *Glycymeris*, *Pecten*, and unidentifiable shell. *Glycymeris* was the most prevalent with four total pendants. Tesserae were made out of *Glycymeris* and unidentifiable shell. Archaeologists found

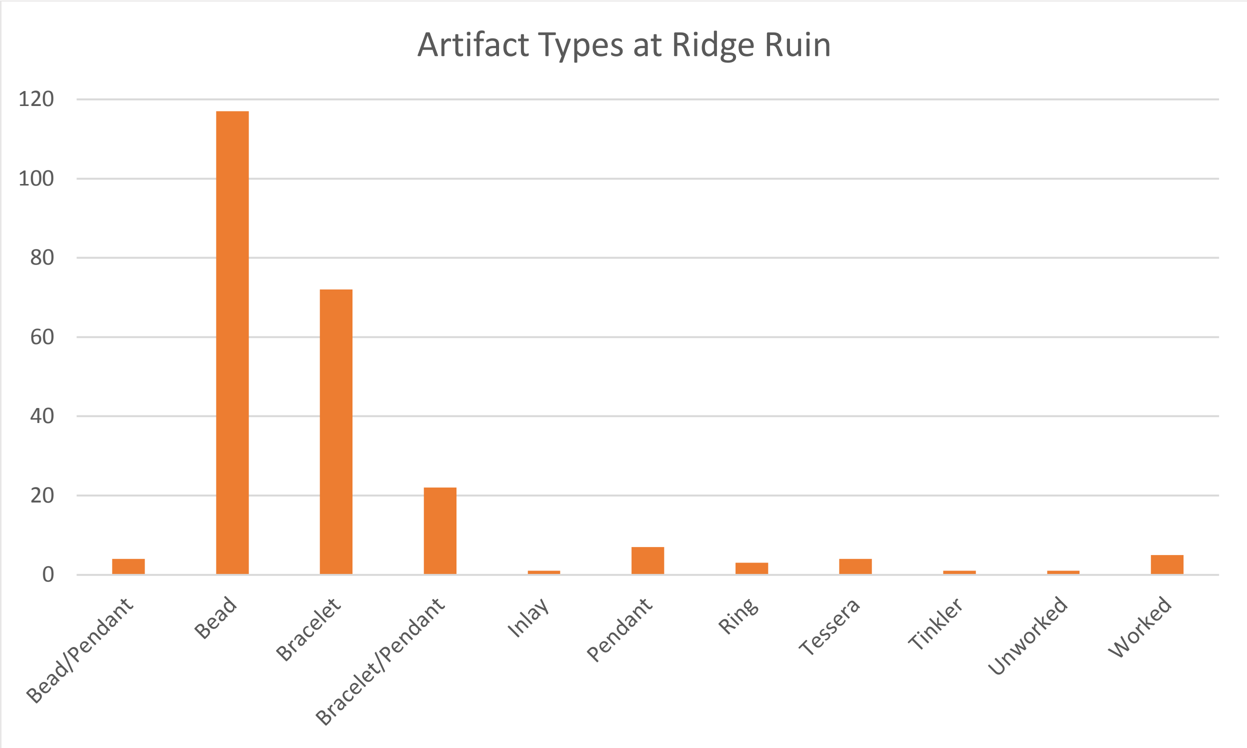


Figure 5.36. Artifacts types present at Ridge Ruin.

one *Conus* tinkler and one piece of unworked *Anodonta*. Worked shell consisted of *Glycymeris*, *Haliotis*, *Ostrea*, and unidentifiable shell with *Glycymeris* being the most prevalent with two artifacts.

Completeness. The shell artifacts from Winona Village are either whole or fragmented (Figure 5.38). In four out of 11 cases, including bracelets, bracelets/pendants, inlay, and rings, there are more fragments present than whole objects. In seven out of 11 cases, including beads, beads/pendants, pendants tesserae, tinklers, worked shell, and unworked shell, there are more whole objects than fragments. The most commonly found whole objects are beads. The most commonly found fragmented objects are bracelets and beads.

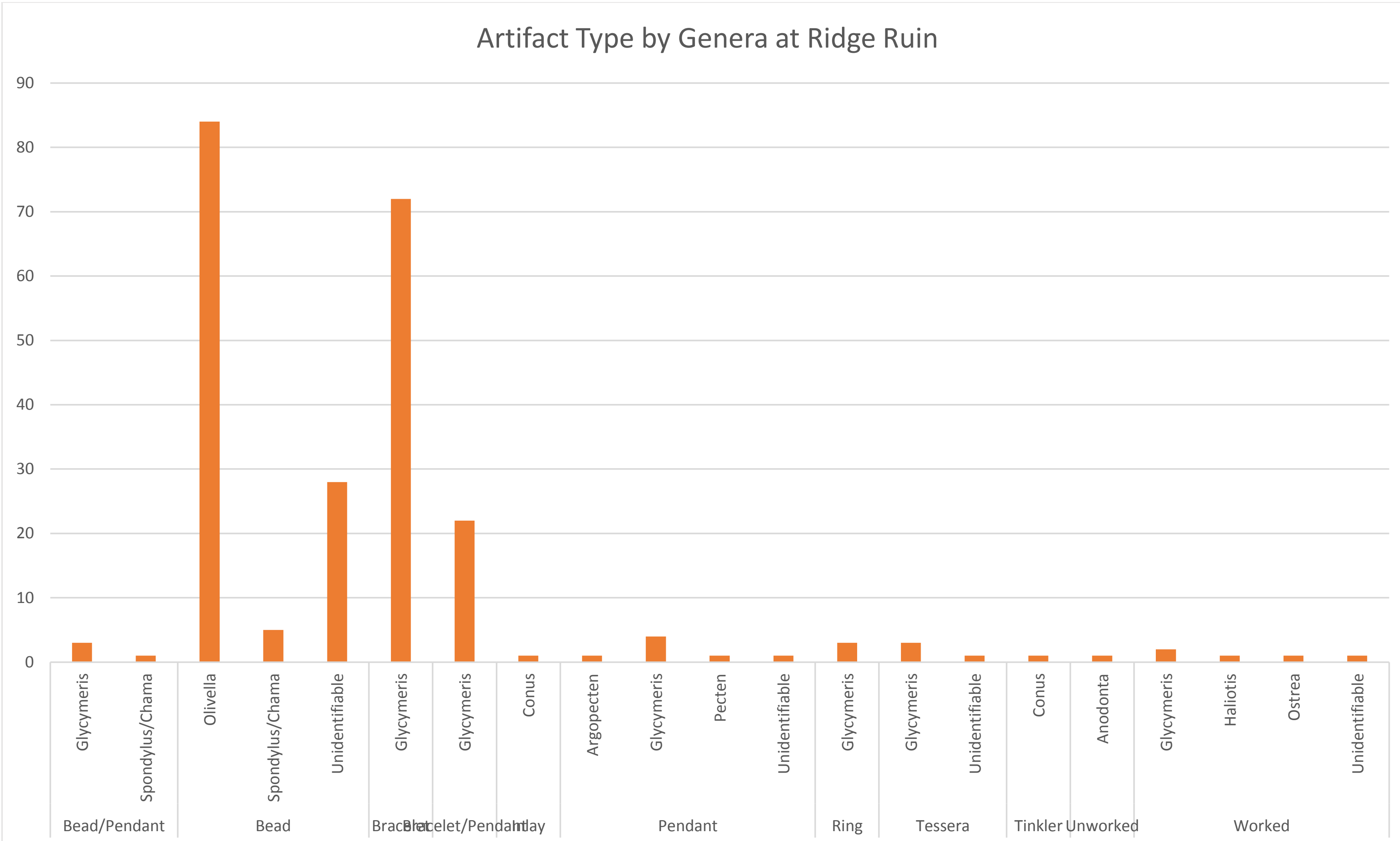


Figure 5.37. Artifact types by genera at Ridge Ruin.

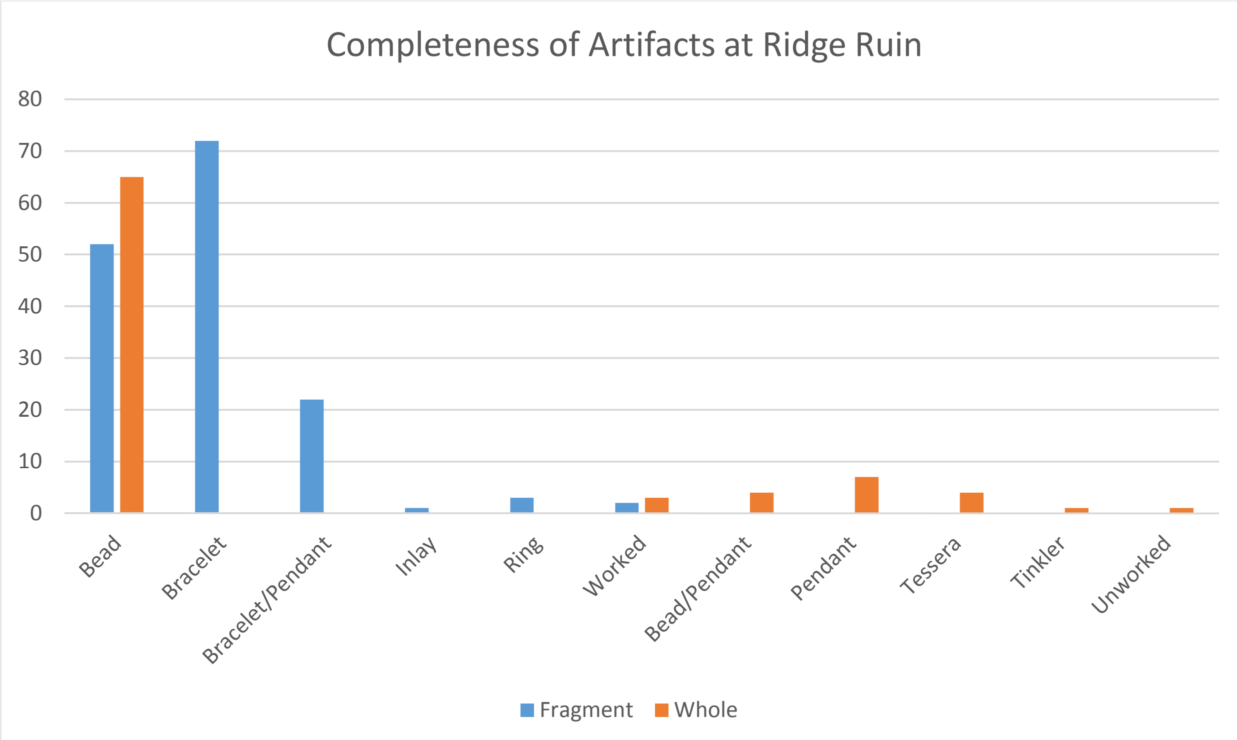


Figure 5.38. Completeness of artifacts at Ridge Ruin.

Characteristics. The shell assemblage from Ridge Ruin exhibits many different characteristics. It consists of burnt and incised shell. It does not include any smoothed, polished, or reworked shell.

Out of 237 shell artifacts, 19 show signs of burning. The burnt shell consists of nine *Olivella* beads, eight *Glycymeris* bracelet fragments, one *Conus* inlay, and one *Glycymeris* bracelet/pendant. These artifacts were found in room fill and trash.

Out of 237 shell artifacts, four show evidence of incising. The incised artifacts include three *Glycymeris* bracelet fragments and one *Glycymeris* whole pendant. The artifacts were found in a hearth, trash, and room fill.

Location. The shell artifacts at Ridge Ruin were found at four sites: NA1785, NA3673, NA3676, and NA3680. Within the sites, the artifacts were found within burials, cremations, pithouses, hearths, room fill, room trash, and trash.

NA1785 contained artifacts in Rooms 2, 12, and 13. In Room 2, archaeologists recovered 65 shell artifacts. These artifacts include 30 plain *Glycymeris* bracelet fragments, one decorated *Olivella* bracelet fragment, 24 *Olivella* beads, seven unidentified shell beads, one *Conus* tinkler, one whole *Glycymeris* shell, and one unworked *Anodonta* fragment (Murphy 2000). Room 12 produced one worked *Glycymeris* fragment (Murphy 2000). Room 13 produced 33 shell artifacts. These include 21 plain *Glycymeris* bracelet fragments, three *Olivella* beads, three unidentified shell beads, one *Spondylus*/*Chama* bead, one *Glycymeris* pendant, one *Pecten* pendant, one *Glycymeris* ring, and one *Conus* tessera (Murphy 2000).

NA3673 contained 146 shell artifacts. All of the artifacts were found in room fill or in the trash mound except for one *Glycymeris* bracelet that was found in the hearth. NA3673R produced 102 shell specimens from room fill. These include 22 plain *Glycymeris* bracelets, 60 unidentified shell beads, three *Glycymeris* tessera, three *Spondylus*/*Chama* beads, two *Glycymeris* pendants, one decorated *Glycymeris* bracelet, one *Spondylus*/*Chama* pendant, one *Argopecten* pendant, one *Glycymeris* zoomorphic pendant, one unidentifiable shell zoomorphic pendant with turquoise, one *Glycymeris* ring, one unidentifiable shell tessera, one unworked *Anodonta*, one worked *Haliotis*, one worked *Glycymeris*, and one worked unidentifiable shell (Murphy 2000). From the trash mound, archaeologists recovered 12 shell artifacts. These include one incised *Glycymeris* bracelet, three *Olivella* beads, one unidentified shell bead, one *Glycymeris* pendant, and six plain *Glycymeris* bracelets (Murphy 2000). The cremation contained 30 *Olivella* beads and the inhumation contained one *Glycymeris* zoomorphic pendant that depicts a lizard with a split tail (Murphy 2000).

NA3673 consists of 10 plain *Glycymeris* bracelet fragments. These artifacts were recovered from the trash fill, but could have been associated with the inhumations that were located in the trash fill (Murphy 2000).

NA3680 contained one *Glycymeris* bracelet fragment and one *Glycymeris* ring fragment. Archaeologists recovered these two artifacts in one of the five burials at the pithouse (Murphy 2000).

Winona Village

The shell assemblage from Winona Village consists of 526 shell artifacts from six sites. The assemblage consists of 14 different genera and 11 different types of artifacts. The completeness ranges from fragmented to whole. There is evidence of burning, incising, and reworking shell, but no indication of smoothing or polishing shell. The shell was located above the floor, below the surface, in burials, cists, cremations, floors, trash, trenches, pithouses, sections, surface, and unknown contexts.

Shell Genera. The shell from Winona Village consists of 14 different genera (Figure 5.39): *Argopecten*, *Chione*, *Chione*/*Glycymeris*, *Conus*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Olivella*, *Oreohelix*, *Ostrea*, *Pecten*, *Spondylus*/*Chama*, and *Turritella*. Additionally, there were two categories that could not be identified specifically: fresh water snails and unidentifiable shell. The majority of shell found at Winona Village is *Olivella* with 194 total artifacts. Following *Olivella* closely is *Glycymeris* with 173 total artifacts.

Artifact Types. The shell assemblage from Winona Village consists of 11 different artifact types (Figure 5.40): bracelet, tinkler, bead, pendants, bracelet/pendant, bead/pendant, ring, tesserae, unworked, worked, and reworked. McGregor (1941) noted

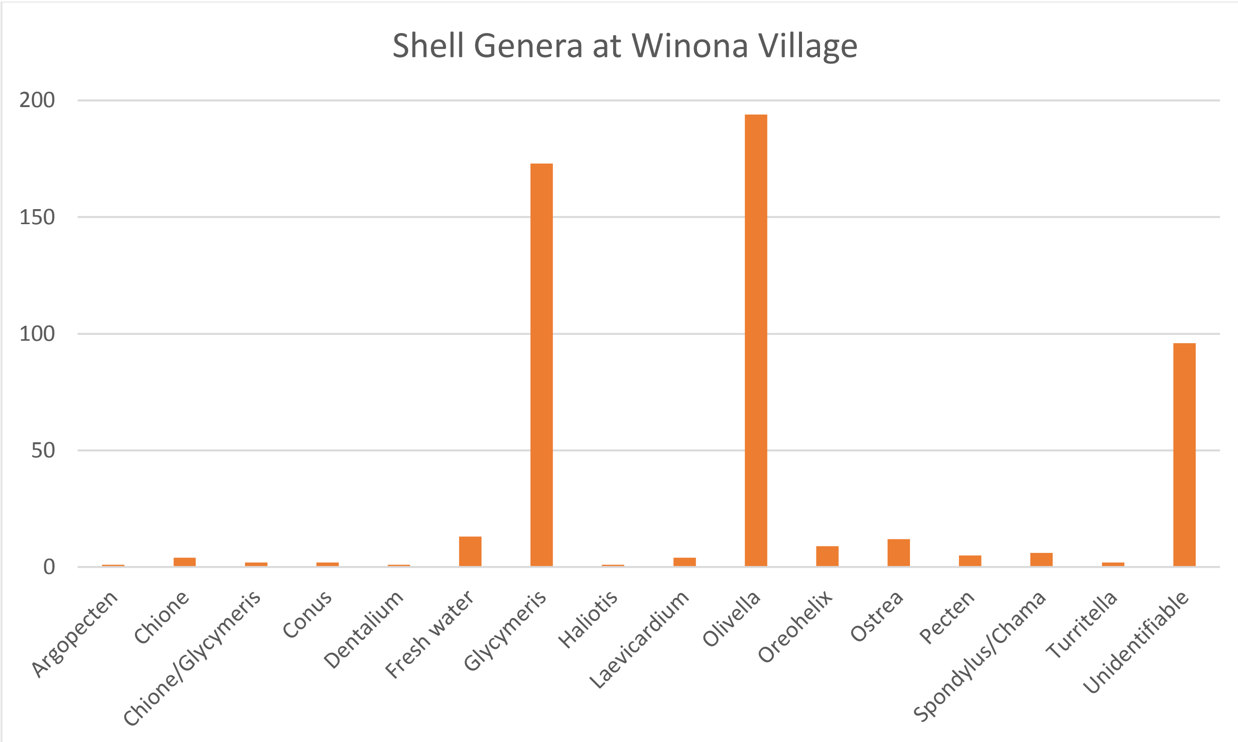


Figure 5.39. Shell genera present at Winona Village.

the presence of shell debitage at Winona Village, yet no shell debitage exists in collections. The majority of shell artifacts are beads with a total of 291 artifacts. Following beads are bracelets with 142 artifacts.

There are differences in shell genera within each artifact category (Figure 5.41). Bracelets at Winona Village were made from *Glycymeris* and *Spondylus*/*Chama* with *Glycymeris* being the most commonly used shell for bracelets with 141 artifacts. Tinklers were made of *Conus* with only two artifacts found. Beads were made of *Olivella*, *Pecten*, *Spondylus*/*Chama*, and unidentifiable shell. *Olivella* is the most prevalent with 194 beads followed by unidentifiable shell with 92 beads. Pendants were manufactured out of *Chione*, *Glycymeris*, *Ostrea*, *Pecten*, *Turritella*, and unidentifiable shell with *Glycymeris* being most prevalent with three pendants. There were 23 bracelets/pendants made of *Glycymeris* recovered. Archaeologists found one *Dentalium*

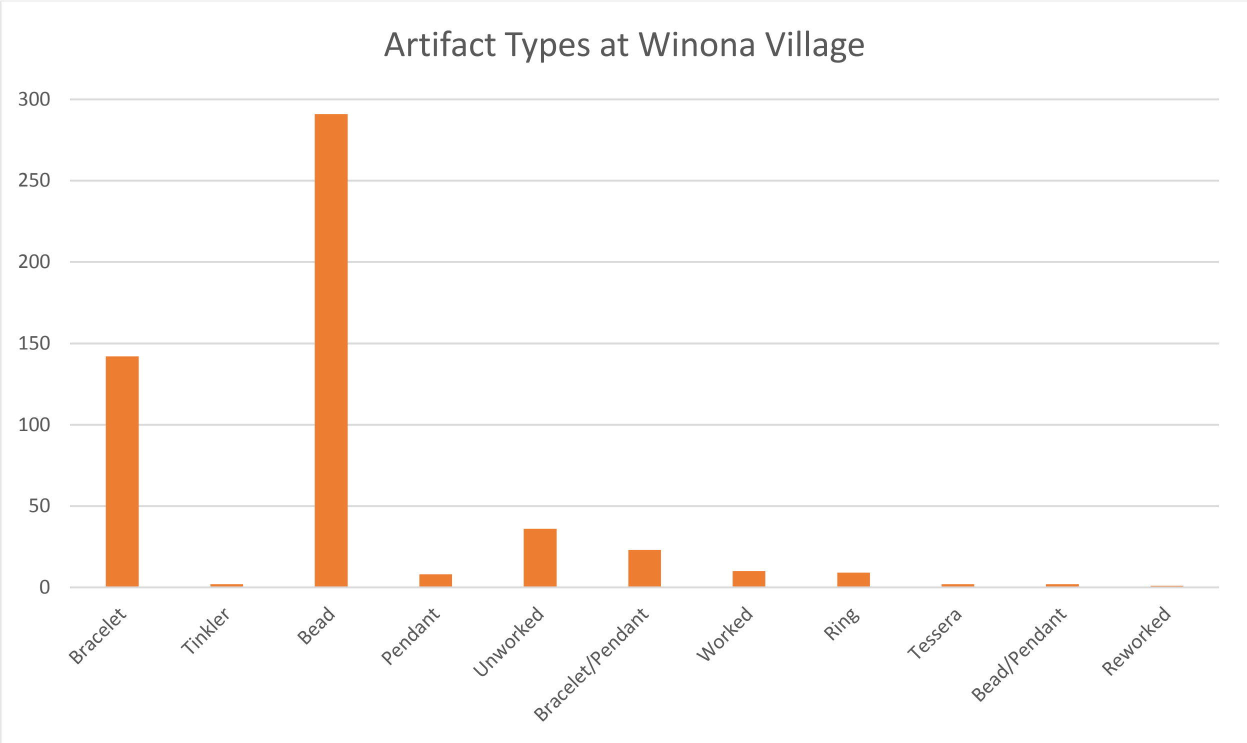


Figure 5.40. Artifact types at Winona Village.

and one *Turritella* bead/pendant. *Rings* were made of *Chione*, *Chione*/*Glycymeris*, *Glycymeris*, and unidentifiable shell with *Chione* being the most prevalent with three artifacts. Two tessera made of *Spondylus*/*Chama* were found. Unworked shell consisted of fresh water snails, *Oreohelix*, *Argopecten*, *Laevicardium*, and *Ostrea*. Fresh water snails were the most common with 13 artifacts. Worked shell consists of *Glycymeris*, *Haliotis*, *Laevicardium*, and *Pecten* with *Glycymeris* being the most prevalent with five artifacts. Only one reworked unidentifiable shell was found.

Completeness. The shell artifacts from Winona Village are either whole or fragmented (Figure 5.42). In six out of 11 cases, including bracelets, bracelet/pendants, pendants, rings, unworked shell, and worked shell, there are more fragments present than whole objects. In five out of 11 cases, including beads, tinklers, tesserae, and

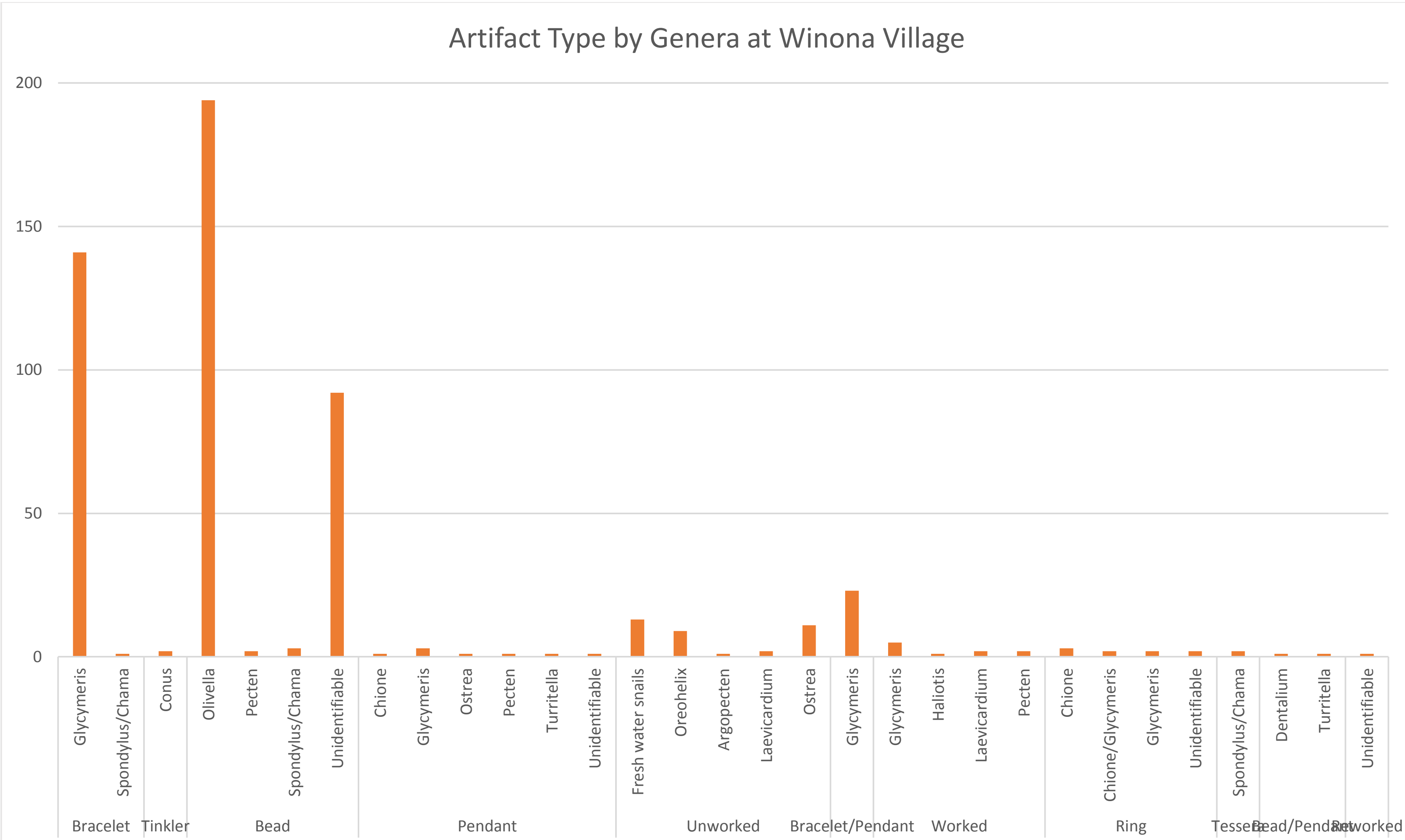


Figure 5.41. Artifact types by genera at Winona Village.

reworked shell, there are more whole objects than fragments. The most commonly found whole objects are beads. The most commonly found fragmented objects are bracelets and beads. For beads/pendants, there were equal numbers of fragmented and whole shell.

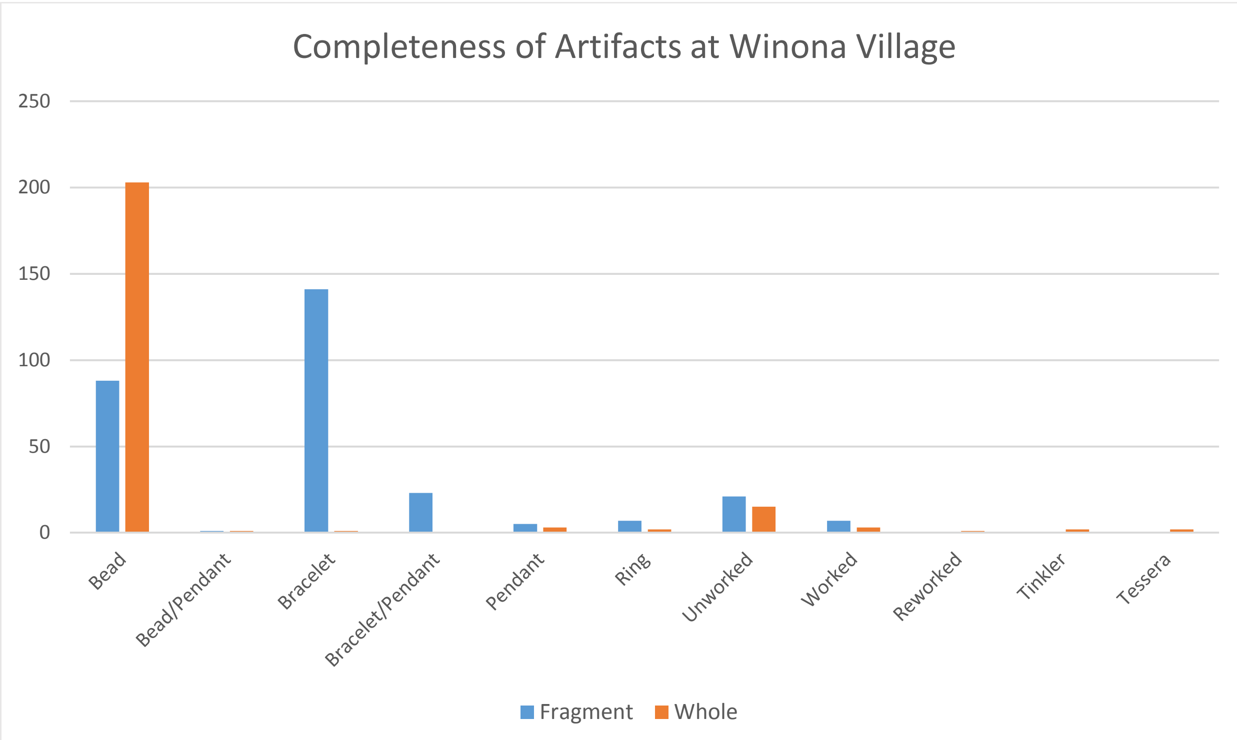


Figure 5.42. Completeness of artifacts at Winona Village.

Characteristics. The shell assemblage from Winona Village exhibits many different characteristics. It consists of shell that is burnt, incised, and reworked.

Only two shell artifacts show signs of burning. The burnt shell consists of two *Glycymeris* bracelet fragments. Archaeologists found one of the *Glycymeris* bracelet fragments in Section 3 and the other on an old floor in an unspecified room.

Out of 526 shell artifacts, nine show evidence of incising. One artifact is both incised and reworked. I will discuss this artifact in the paragraph below. The eight remaining incised artifacts include three geometric patterned *Glycymeris* bracelet fragments, one zig-zag incised *Glycymeris* bracelet fragment, one bracelet fragment with unspecified design, one whole *Glycymeris* pendant, one *Glycymeris* worked shell fragment, and one *Glycymeris* bracelet/pendant fragment with a carved umbo. Archaeologists found the artifacts on old floors, in trash, and from Section 5, Section 7, Section A, and Section Y4.

Additionally, out of the 526 shell artifacts only one showed evidence of reworking. The reworked shell was a whole unidentifiable shell. It was worked into an eccentric or zoomorphic shape. It is also incised.

Location. The shell artifacts are from six different sites in the Winona Village site complex: NA2131, NA2132, NA2133, NA2134, NA35, and NA3644. Within these sites, the artifacts were located above the floor, below the surface, in burials, cists, cremations, floor, trash, trenches, pithouses, sections, surface, and unknown contexts.

NA2131 contained 32 shell artifacts. Archaeologists recovered the majority of shell from trash mounds. No shell was recovered from the associated pithouse. *Glycymeris* bracelets are the most prevalent with 19 artifacts. Seventeen of the bracelets were found in trash fill, one was found on a masonry room floor, and one was found in a cist. Archaeologists also found four beads and two *Conus* tinklers located in the cist, fill above masonry room floor, and on the surface of the trash mound. All other artifacts were recovered from the room fill or the trash mound. This includes one *Glycymeris* pendant, one *Pecten* pendant, two pieces of worked *Laevicardium*, one worked piece of *Pecten*, and five fresh water snails (Murphy 2000).

NA2132 contained no shell (Murphy 2000). It is still interesting to note because of the Hohokam style of the ballcourt.

NA2133 contained 108 shell artifacts. Only NA2133A, C, E, and T contained shell artifacts. NA2133A contained one plain *Glycymeris* bracelet and one unidentifiable shell ring fragment from pithouse fill (Murphy 2000). NA2133C contained six shell artifacts: two plain *Glycymeris* bracelet fragments, one incised *Glycymeris* bracelet fragment, and three snail shells. All were recovered from the floor of NA2133C (Murphy 2000). NA2133E contained three shell artifacts: two plain *Glycymeris* bracelet fragments and one worked *Glycymeris* fragment. Archaeologists recovered these artifacts from the surface of the pithouse fill (Murphy 2000). NA2133T contains the majority of shell from NA2133 with 92 artifacts. The site contained 31 plain *Glycymeris* bracelet fragments, six decorated *Glycymeris* bracelet fragments, 22 *Olivella* beads, seven *Pecten* beads, one *Dentalium* pendant, one *Chione* pendant, and one *Glycymeris* pendant. Additionally, seven pieces of unworked *Argopecten*, *Laevicardium*, *Haliotis*, and snail shell were recovered. One piece of worked *Glycymeris* was also found (Murphy 2000).

NA2134 produced 339 shell artifacts. One disk bead made of unidentifiable shell was recovered from the fill of Pithouse A (Murphy 2000). Archaeologists recovered five total shell artifacts from Pithouse E: one *Olivella* bead, one plain *Glycymeris* bracelet, two fragments of unworked *Ostrea*, and one fresh water gastropod (Murphy 2000). Eight of the 24 cremations contained shell. The cremations contained 165 shell beads total. The majority of the shell from NA2134 was found in the trash mound. Plain *Glycymeris* bracelets were the most prevalent with 67 present. *Olivella* beads follow plain *Glycymeris* bracelets with 50 beads present. Additional artifacts found in the trash mound include decorated bracelet fragments, additional beads of various genera, rings, pendants, tesserae, worked shell, and unworked snail shells (Murphy 2000).

Only Pithouse C in NA2135 contained shell. Six shell artifacts were found at Pithouse C. These include one *Chione* ring, four plain *Glycymeris* bracelet fragments, and one *Haliotis* zoomorphic pendant. Archaeologists found the artifacts on the floor and in the fill above the floor in the pithouse (Murphy 2000).

Four of the nine excavated pithouses at NA3644 contained shell. Pithouse H contained one *Glycymeris* zoomorphic pendant and one plain *Glycymeris* bracelet (Murphy 2000). Pithouse J contained one whole *Turritella* pendant, one *Spondylus*/*Chama* disc bead, and one plain *Glycymeris* bracelet fragment (Murphy 2000). Pithouse L and Q both contained one plain *Glycymeris* bracelet fragment (Murphy 2000). One of the eleven burials contained shell. This burial contained two disc beads made of unidentifiable shell (Murphy 2000). The trash mounds produced the most shell. Archaeologists recovered plain bracelets, beads, and worked shell (Murphy 2000).

Shelltown

The shell assemblage from Shelltown consists of 11,215 shell artifact. From the legacy data, it is unknown how many occurrences existed. The shell assemblage consists of 24 different genera and 7 different types of artifacts. The completeness ranges from fragmented to whole. From the legacy data, there is evidence of reworked shell. Within the site, the artifacts were found in formal structures, informal structures, small structures, temporary structures, trash pits, caches, and cremations.

Shell Genera. The shell from Shelltown consists of 24 different genera (Figures 5.43 and 5.44): *Glycymeris*, *Laevicardium*, *Pteria*, *Pinctada/Pteria*, *Spondylus*, *Spondylus/Chama*, *Argopecten*, *Pecten*, *Dosinia*, *Protothaca*, *Chione/Protothaca*,

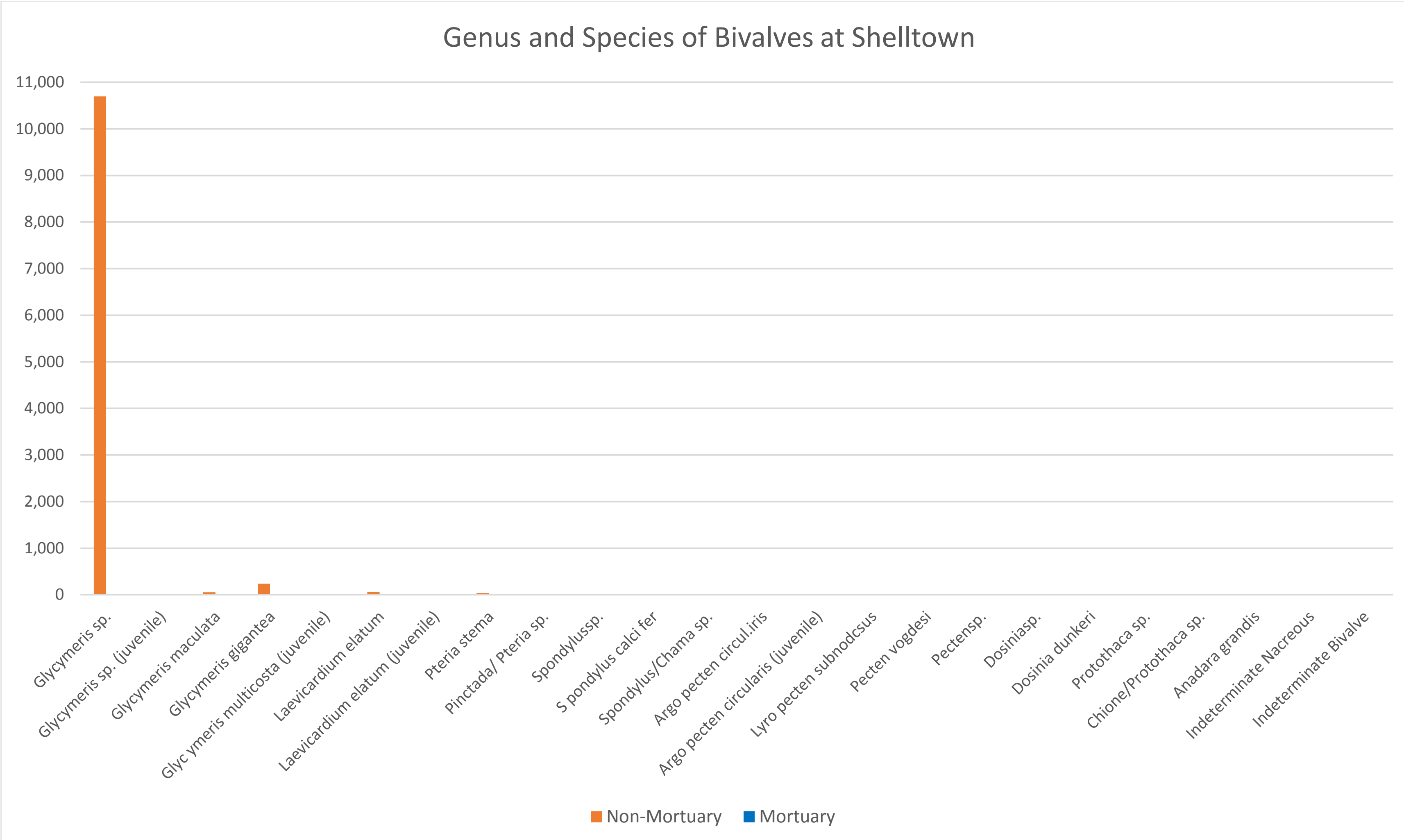


Figure 5.43. Genus and species of bivalves at Shelltown.

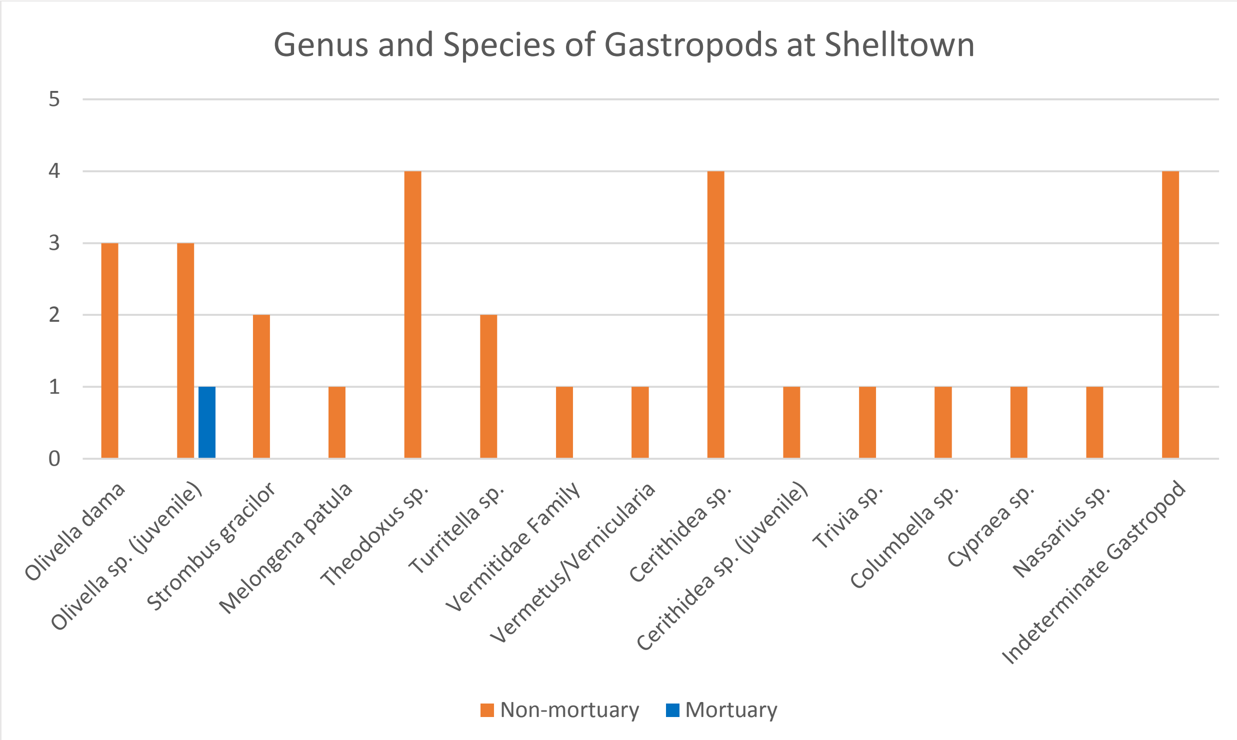


Figure 5.44. Genus and species of gastropods at Shelltown.

Anadara, *Olivella*, *Strombus*, *Melongena*, *Theodoxus*, *Turritella*, *Vermitidae*, *Vermetus/Vernicularia*, *Cerithidea*, *Trivia*, *Columbella*, *Cypraea*, and *Nassarius*. Additionally, there were three categories that could not be identified specifically: indeterminate nacreous, indeterminate bivalve, and indeterminate gastropod. The majority of shell found at Shelltown is *Glycymeris* with 11,001 total artifacts, which comprises 98 percent of the data set.

Artifact Types. The shell assemblage from Shelltown consists of eight different artifact types: bead, bracelet, and debitage. The majority of shell artifacts consist of debitage with a total of 9,802 artifacts. Following debitage are finished artifacts consisting of beads, bracelets, pendants, ornaments, and rings. Finished shell artifacts consist of 74 artifacts and comprise only 0.6 percent of the assemblage. Within the finished shell artifacts there were 35 bracelets, 16 finished pendants, 12 beads, and nine rings/pendants (Marmaduke et al. 1993).

There are differences in shell genera within each artifact category. Bracelets at Shelltown were solely made from *Glycymeris*. At Shelltown, archaeologists recovered 35 finished bracelets, 76 semi-finished bracelets, and 1,025 unfinished bracelets. A total of 15 finished pendants and seven unfinished pendants were recovered from Shelltown. Finished pendants were made of *Glycymeris*, *Laevicardium*, *Argopecten*, *Pecten*, *Pinctada*/*Pteria*, *Turritella*, and *Cypraea*. *Laevicardium* is the most prevalent with six finished pendants. Unfinished pendants were made of *Argopecten*, *Spondylus*, and *Pteria*. *Argopecten* and *Pteria* are the most prevalent genera with three unfinished pendants each. Archaeologists recovered a total of 12 finished beads from Shelltown. The finished beads were made from *Glycymeris*, *Laevicardium*, *Argopecten*, *Olivella*, *Cerithidea*, and *Turritella*. *Laevicardium* is the most prevalent with six finished beads. A total of six unfinished beads were recovered from Shelltown. The unfinished beads are made from *Glycymeris*, *Dosinia*, and *Olivella*. *Glycymeris* is the most prevalent genus with four unfinished disc beads. Archeologists found a total of nine finished rings/pendants at Shelltown. Finished rings/pendants were made of *Glycymeris*, *Argopecten*, and *Pecten*. *Glycymeris* and *Argopecten* finished rings/pendants are the most prevalent with four artifacts each.

Completeness. The shell artifacts from Shelltown are either whole, fragmented, or indeterminate (Figure 5.45). In four out of six cases, including unworked shell, debitage, reworked shell, and utilized shell, there are more fragments present than whole objects. In one out of six cases, worked ornaments, there are more whole objects than fragments. One out of the six cases consisted of shell whose completeness could not be determined. The legacy data did not specify artifact types when looking at completeness. Therefore, I conclude that the most commonly found whole objects are worked ornaments and the most commonly found fragmented objects are debitage.

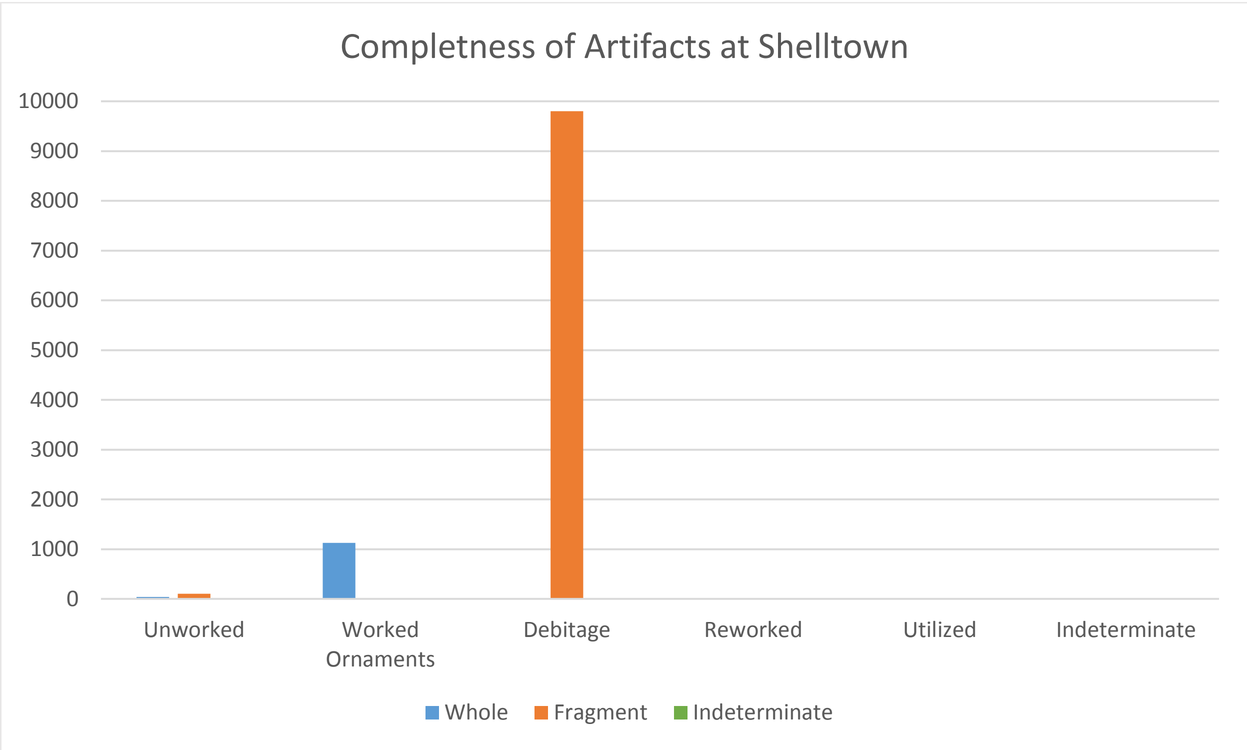


Figure 5.45. Completeness of artifacts at Shelltown.

Characteristics. The shell assemblage from Shelltown only exhibits reworked shell. From the legacy data, it is unclear if the previous archaeologists examined the shell for other characteristics such as polished, smoothed, incised, or burnt. Since Shelltown is a Hohokam shell manufacturing site, it is more than likely that there was shell that shows evidence of polishing, smoothing, incising, burning, or etching although this is not seen in the legacy data.

Out of the 11,215 shell artifacts from Shelltown, nine show evidence of reworking. All of the reworked shell consists of reworked ornaments. Seven of the reworked ornaments are made from *Glycymeris* and two are made out of *Laevicardium*.

Although not noted in the original data as incised or etched (Marmaduke et al. 1993), there is evidence of motifs on shell pendants from Shelltown. The motifs ranged from geometric designs such as circular and triangle to zoomorphic such as bird, lizard, and quadrupeds to anthropomorphic (Marmaduke et al. 1993). All of the *Glycymeris* bracelets at Shelltown were plain except for two, which had decorated bands with umbos carved into frog effigies (Marmaduke et al. 1993).

What is unusual about the shell assemblage from Shelltown compared to Wupatki Pueblo and the Sinagua sites is that there is evidence of shell manufacturing. This can be seen through shell debitage and stone tools. Present in the Shelltown assemblage is manufacturing debitage and unknown debitage. There are 9,773 pieces of bracelet manufacturing debitage consisting of solely *Glycymeris*. There are 23 pieces of unknown debitage present consisting of *Glycymeris*, *Spondylus*, *Spondylus*/*Chama*, and indeterminate bivalves. The most prevalent genus is *Spondylus* with 10 pieces of debitage.

Location. During excavations at Shelltown, archaeologists divided the site into loci. Each locus has a distinct date range. Within each locus are different features, which were assigned their own feature number. Archaeologists also distinguished between finding shell in non-mortuary and mortuary contexts.

Locus 1 dates from A.D. 825 to A.D. 845. It consists of 13 features: seven formal structures, four informal structures, one small structure, and one trash pit. The formal structures produced 2,014 shell artifacts. The informal structures produced 1,765 shell artifacts. The small structure contained one shell artifact and the trash pit contained 121 shell artifacts. Overall, Locus 1 contained 3,901 artifacts, which is 34.8 percent of the total assemblage.

Locus 2 dates from A.D. 835 to A.D. 855. It consists of 15 features: two formal structures, six informal structures, three small structures, two trash pits, one pit, and one cache. The formal structures contained 554 shell artifacts. The informal structures contained 594 shell artifacts. The small structures contained 1,362 shell artifacts. The trash pits contained 2,604 shell artifacts and the pit contained 27 shell artifacts. The cache consisted of 14 shell artifacts. Locus 2 produced 5,155 total shell artifacts comprising of 46 percent of the total assemblage.

Locus 3 dates from A.D. 845 to A.D. 865. Loci 3 consists of nine features: two formal structures, three temporary structures, two trash pits, one pit, and one non-feature. The formal structures contained 484 shell artifacts. The temporary structures contained 1,018 shell artifacts. The trash pit contained 236 shell artifacts. The pit contained five shell artifacts and the non-feature contained four shell artifacts. Locus 3 consisted of a total of 1,747 shell artifacts comprising of 15.6 percent of the whole assemblage.

Locus 4 dates from A.D. 925 to A.D. 1025. It comprises of 14 features: 10 formal structures, one small structure, and three cremations. The formal structures total 400 shell artifacts. The small structure consists of seven shell artifacts and the cremations comprise of five shell artifacts. Locus 4 contains 412 total shell artifacts comprising 3.7 percent of the total assemblage.

Archaeologists found the majority of shell in Loci 1 and 2. This is also where the majority of shell production was taking place at Shelltown, which can be seen through the increased presence of *Glycymeris* bracelet debitage (Marmaduke et al. 1993). Out of the 21 architectural features in Loci 1 and 2, 11 showed evidence of production ranging from low to high levels of manufacturing (Marmaduke et al. 1993). Locus 3 represents a lower production level than Loci 1 and 2. Two out of the five architectural features in Locus 3 showed evidence of *Glycymeris* bracelet production (Marmaduke et al. 1993). In Locus 4, two of the 11 structures show evidence of production. Locus 4 differs from Loci 1, 2, and 3 in that it shows more utilization of *Laevicardium*. *Glycymeris* bracelet production was still the primary activity, but there is increased production in *Laevicardium* cut-shell ornaments (Marmaduke et al. 1993).

Archaeologists differentiated the shell artifacts at Shelltown based on if they were found in non-mortuary or mortuary contexts. Out of 11,215 shell artifacts, only five shell artifacts were from mortuary contexts. All of the shell from mortuary contexts was found in Locus 4. The shell consisted of three pieces of *Glycymeris* bracelet debitage, one semi-finished *Glycymeris* bracelet, and one finished *Olivella* bead.

The Hind Site

The shell assemblage from the Hind Site consists of 8,728 shell artifacts. From the legacy data, it is unknown how many occurrences existed. The shell assemblage consists of 25 different genera and eight different types of artifacts. The completeness ranges from fragmented to whole. From the legacy data, there is evidence of reworked shell. Within the site, the artifacts were found in formal structures, small structures, informal features, borrow pits, trash deposits, caches, pits, roasting pits, and unexcavated structures.

Shell Genera. The shell from the Hind Site consists of 25 different genera (Figure 5.46): *Glycymeris*, *Spondylus*, *Chama*, *Spondylus*/*Chama*, *Dosinia*, *Laevicardium*, *Argopecten*, *Pecten*, *Pinctada*/*Pteria*, *Pteria*, *Glycymeris*/*Dosinia*, *Chione*, *Codakia*, *Trachycardium*, *Megapitaria*, *Cardita*, *Anachis*, *Olivella*, *Columbella*, *Vermetus*/*Vermicularia*, *Vermetidae*, *Turritella*, *Conus*, *Haliotis*, and *Trivia*. Additionally, there were four categories that could not be identified specifically: indeterminate nacreous, indeterminate bivalve, indeterminate gastropod, and indeterminate operculum. The majority of shell found at the Hind Site is *Glycymeris* with 6,568 total artifacts. *Dosinia* and *Spondylus* follow *Glycymeris* with 590 and 557 artifacts respectively.

Artifact Types. The shell assemblage from the Hind Site consists of eight different artifact types: bead, bracelet, pendant, ornament, ring, unworked shell, worked shell, and debitage. The majority of shell artifacts consist of debitage with a total of 6,972 artifacts. Following debitage are finished artifacts consisting of beads, bracelets, pendants, ornaments, and rings. Finished shell artifacts consist of 131 artifacts, semi-finished shell consists of 48 artifacts, and unfinished shell consists of 909 artifacts.

There are differences in shell genera within each artifact category. Bracelets at the Hind Site were solely made from *Glycymeris*. At the Hind Site, archaeologists recovered 54 finished bracelets, 43 semi-finished bracelets, and 560 unfinished bracelets. Archaeologists recovered a total of seven finished pendants and three unfinished pendants from the Hind Site. Finished pendants were made of *Laevicardium*,

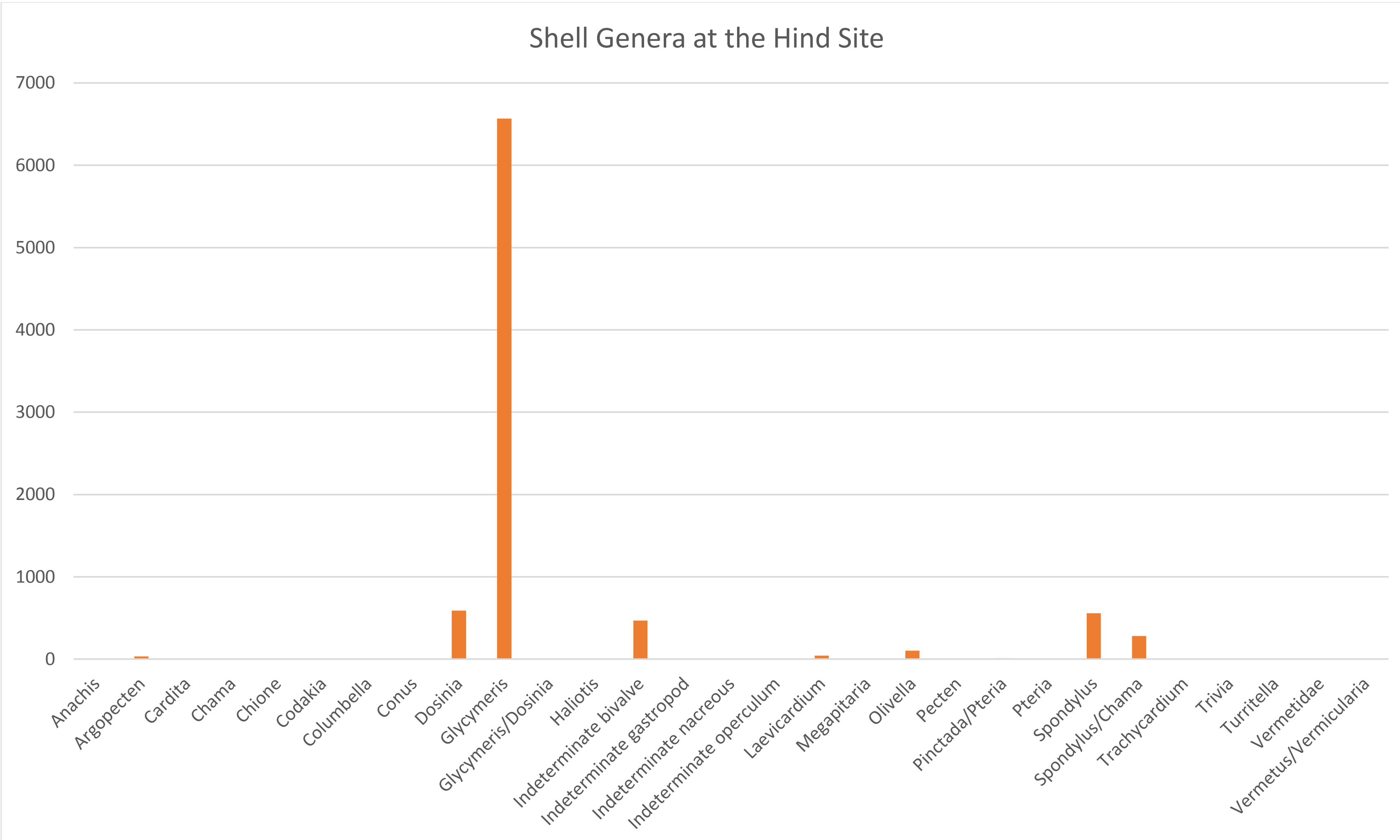


Figure 5.46. Shell genera at the Hind Site.

Pecten, *Spondylus*, *Pinctada*/*Pteria*, and indeterminate bivalve. *Pinctada*/*Pteria* is the most prevalent with three finished pendants. Unfinished pendants were made of *Glycymeris* and *Pinctada*/*Pteria*. *Glycymeris* is the most prevalent with two unfinished pendants. Archaeologists recovered a total of 64 finished beads from the Hind Site. The finished beads were made from *Glycymeris*, *Dosinia*, *Argopecten*, *Spondylus*, *Spondylus*/*Chama*, *Olivella*, *Columbella*, *Trivia*, *Anachis*, and indeterminate bivalve. *Olivella* is the most prevalent with 20 finished beads. Archaeologists found one semi-finished bead made of an indeterminate bivalve at the Hind Site. A total of 337 unfinished beads were recovered from the Hind Site. The unfinished beads are made from *Spondylus*, *Spondylus*/*Chama*, *Dosinia*, *Olivella*, and indeterminate bivalves. Indeterminate bivalves are the most prevalent with 218 unfinished beads.

Completeness. The shell artifacts from the Hind Site are either whole, fragmented, or indeterminate (Figure 5.47). In three out of six cases, including unworked shell, worked shell, and debitage, there are more fragments present than whole objects. In two out of six cases, reworked shell and ornaments, there are more whole objects than fragments. One out of the six cases consisted of shell whose completeness could not be determined. The legacy data did not specify artifact types when looking at completeness. Therefore, I conclude that the most commonly found whole objects are worked ornaments and the most commonly found fragmented objects are debitage.

Characteristics. The shell assemblage from the Hind Site only exhibits reworked shell. From the legacy data, it is unclear if the previous archaeologists examined the shell for other characteristics such as polished, smoothed, incised, or burnt. Since the

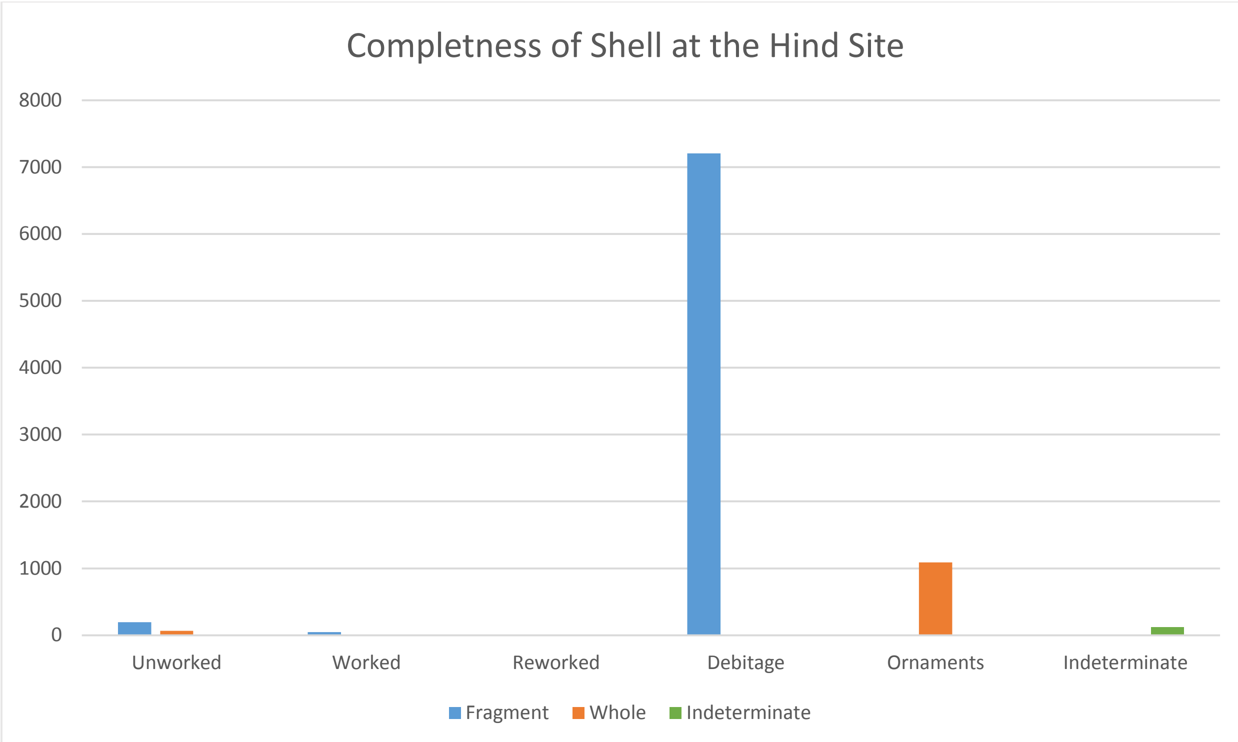


Figure 5.47. Completeness of shell artifacts at the Hind Site.

Hind Site is a Hohokam shell manufacturing site, it is more than likely that there was shell that showed evidence of polishing, smoothing, incising, burning, or etching although this is not seen in the legacy data.

Out of the 8,728 shell artifacts from the Hind Site, two show evidence of reworking. It is unclear from the legacy data what types of artifacts show reworking as the data only states that there are two reworked artifacts. Both of the reworked artifacts are made from *Glycymeris*.

Little stylistic variability is noted in beads (Marmaduke et al. 1993). Beads ranged from being disc, spire-lopped, or whole shell. *Glycymeris* bracelets also showed little stylistic variability. The bracelets tended to be thin and plain with flattened umbos (Marmaduke et al. 1993). Although not noted in the original data as incised or etched (Marmaduke et al. 1993), there is evidence of motifs on shell pendants from the Hind

Site. Ornaments exhibited the most stylistic diversity. Their motifs were predominantly geometric, but also included zoomorphic designs (Marmaduke et al. 1993).

Like Shelltown, what is unusual about the shell assemblage from the Hind Site compared to Wupatki Pueblo and the Sinagua sites is that there is evidence of shell manufacturing. This can be seen through shell debitage and stone tools. Also present in the Hind Site assemblage is manufacturing debitage and unknown debitage. There are 5,867 pieces of bracelet manufacturing debitage consisting of solely *Glycymeris*. There are 1,105 pieces of bead manufacturing debitage consisting of *Glycymeris*, *Dosinia*, *Spondylus*, *Spondylus*/*Chama*, and indeterminate bivalves. The most prevalent is *Dosinia* with 492 pieces of bead manufacturing debitage. There are also 235 pieces of unknown debitage present consists of *Glycymeris*/*Dosinia*, *Dosinia*, *Spondylus*, *Spondylus*/*Chama*, and indeterminate bivalves. The most prevalent is *Spondylus* with 116 pieces of debitage.

Location. Archaeologists found shell artifacts at the Hind Site within formal structures, small structures, informal features, borrow pits, trash deposits, caches, pits, roasting pits, and unexcavated structures (Figure 5.48).

A total of 43 features were sampled. Out of 8,728 shell artifacts, 5,873 were found within 17 formal structures, which comprises 67.3 percent of the total assemblage. On average, 345 shell artifacts would be found in each formal structure.

Three small structures contained 191 shell artifacts with an average of 64 artifacts per feature. Within 10 informal structures, archaeologists found 1,851 shell artifacts averaging 185 shell artifacts per informal structure. From one borrow pit, 520 shell artifacts were found. From three trash deposits, archaeologists found 154 shell

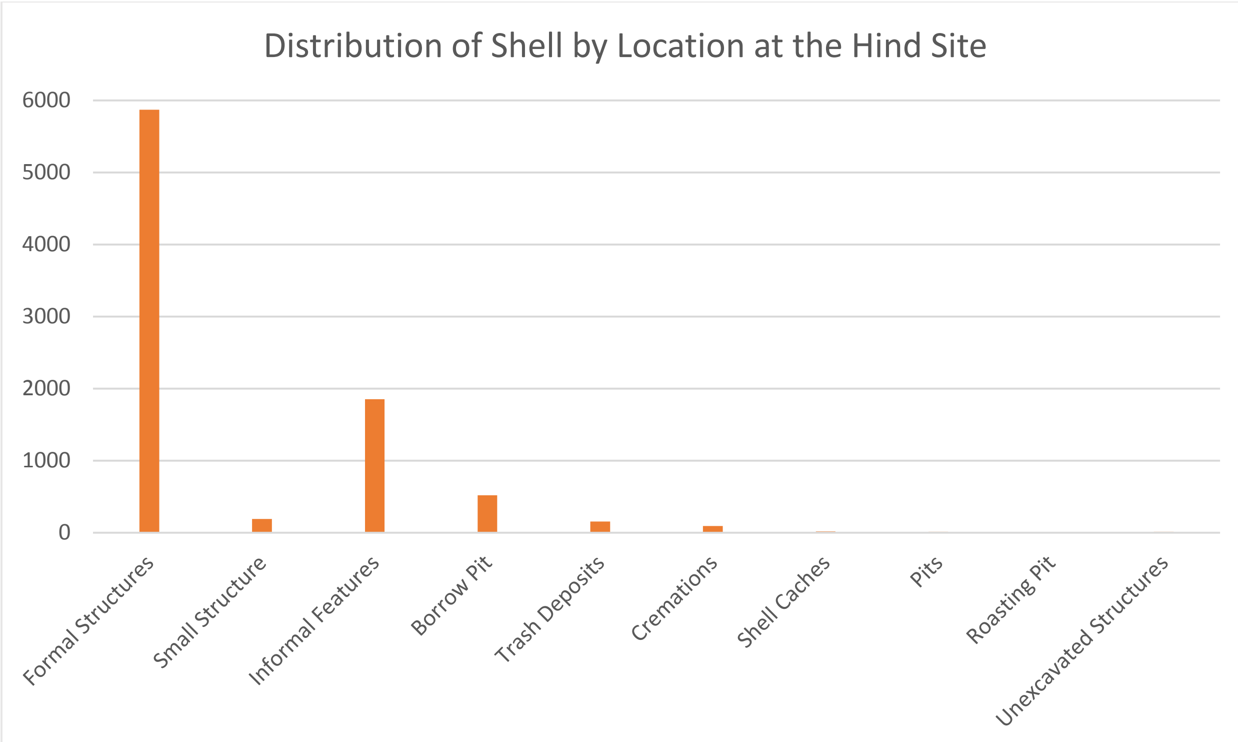


Figure 5.48. Location of shell artifacts within the Hind Site.

artifacts with an average of 51 artifacts per trash deposit. Out of three cremations, 91 artifacts were recovered indicating an average of 51 artifacts per cremation. Out of two shell caches, 15 artifacts were found. Out of two pits, archaeologists recovered 12 artifacts. In the only roasting pit, nine artifacts were found and in one unexcavated structure, 12 artifacts were found.

From the legacy data, it is unclear which shell genera were located in each feature. Marmaduke et al. (1993) note that there was a high presence of *Glycymeris* bracelets and manufacturing debris found in structures. Within the structures, archaeologists found the shell around hearths and on the floor surface (Marmaduke et al. 1993).

Wupatki Pueblo Compared to Sinagua Sites

In comparing the shell assemblage from Wupatki Pueblo to three Sinagua sites, Wupatki Pueblo has 1,844 shell artifacts and the Sinagua sites have a total of 2,071 shell artifacts. The shell assemblage from Wupatki Pueblo consists of 22 different genera and 13 different types of artifacts. The shell assemblage from the Sinagua sites consists of 26 different genera and 17 different types of artifacts. The completeness for both Wupatki Pueblo and the Sinagua sites ranges from fragments to whole shell. Wupatki Pueblo has evidence of burnt, smoothed, polished, incised, and reworked shell and the Sinagua sites have evidence of burnt, polished, incised, and reworked shell. Within the site at Wupatki Pueblo, archaeologists recovered shell artifacts in rooms, trenches, trash mounds, retaining walls, room trash, on the surface, in the amphitheater, and in the ballcourt. Within the Sinagua sites, the artifacts were found in pueblos, pithouses, kivas, rooms, burials, burial pits, walls, trenches, trash mounds, cremations, hearths, room fill, room trash, above the floor, below the surface, on the surface, cists, floor, sections, and unknown locations.

Shell Genera. The shell assemblage from Wupatki Pueblo consists of 22 different genera: *Aequipecten*, *Anodonta*, *Cardium*, *Clima*, *Conus*, *Cowry*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Murex*, *Nassarius*, *Naticidae*, *Neritina*, *Olivella*, *Oreohelix*, *Pecten*, *Polinices*, *Spondylus*, *Spondylus/Chama*, *Strombus*, and *Turritella*. The assemblage also contains six unidentified categories: crinoid fossil, unidentified gastropod, unidentified marine bivalve, unidentified univalve, unidentified mollusk, and unknown. *Olivella* is the most prevalent with 595 artifacts. *Glycymeris*, *Spondylus*, and *Conus* follow *Olivella* with 341, 321, and 170 artifacts respectively.

The shell assemblages from the Sinagua sites consist of 26 different genera: *Anodonta*, *Argopecten*, *Chione*, *Chione*/*Glycymeris*, *Conus*, *Cardium*, *Cerithidea*, *Cockle*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Nassarium*, *Nerita*, *Oliva*, *Olivella*, *Oreohelix*, *Ostrea*, *Pecten*, *Pyrene*, *Rumina*, *Spondylus*, *Spondylus*/*Chama*, *Turritella*, *Trachycardium*, and *Trivia*. The assemblage also consists of six unknown categories: fossilized shell, freshwater clam, freshwater snail, unknown bivalve, unknown univalve, and unknown. *Olivella* is the most prevalent with 864 artifacts. Following *Olivella* is *Glycymeris* with 516 artifacts and *Laevicardium* with 137 artifacts.

Both Wupatki Pueblo and the Sinagua sites have similar shell genera present. The shell assemblages from both cultures contain 14 of the same genera: *Anodonta*, *Cardium*, *Conus*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Nassarius*, *Olivella*, *Oreohelix*, *Pecten*, *Spondylus*, *Spondylus/Chama*, and *Turritella*. Both assemblages also contain three of the same unknown categories: unknown bivalve, unknown univalve, and unknown. Both Wupatki Pueblo and the Sinagua sites had *Olivella* as the most prevalent shell genus present. *Glycymeris* follows *Olivella* in both cultures. What differs is the third most prevalent genus. At Wupatki Pueblo, the third most prevalent genus is *Spondylus* and at the Sinagua sites, *Laevicardium* is the third most prevalent genus.

Since *Olivella* and *Glycymeris* are both the most prevalent at Wupatki Pueblo and the Sinagua sites, I conducted chi-square tests to determine the significance of these shell genera within Wupatki Pueblo and the Sinagua cultural area. The results of the chi-square test for *Olivella* (Table 6.1) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to *Olivella* and non-*Olivella* artifacts is highly significant (X^2 = 37.2779, p < .00001). The results of the chi-square test for *Glycymeris* artifacts (Table 6.2) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to *Glycymeris* and non-*Glycymeris* artifacts is highly significant (X^2 = 23.5365, p < .00001).

Table 6.1. Chi-square tests for *Olivella* and non-*Olivella* artifacts from Wupatki Pueblo and the Sinagua sites.

	Olivella	**Non-*Olivella***	**Totals**
Wupatki Pueblo	595	1249	1844
Sinagua	864	1207	2071
Totals	1459	2456	3915

Table 6.2. Chi-squares tests for *Glycymeris* and non-*Glycymeris* artifacts from Wupatki Pueblo and the Sinagua sites.

	Glycymeris	**Non-*Glycymeris***	**Totals**
Wupatki Pueblo	341	1503	1844
Sinagua	516	1555	2071
Totals	857	3058	3915

Artifact Types. The shell assemblage at Wupatki Pueblo consists of 13 different artifact types: bracelet, bead, ornament, mosaic, pendant, tinkler, ring, needle, disc, figurine, trumpet, worked shell, and unworked shell. The most prevalent artifact types are beads with 1,222 artifacts. Following beads are bracelets, tinklers, and unworked shell with 186, 159, and 154 artifacts respectively.

The shell assemblage of the Sinagua sites consists of 17 different artifact types: bead, bead/pendant, bracelet, bracelet/pendant, debitage, fossil, inlay, pendant, pendant/ring, reworked, ring, tesserae, tinkler, utility, worked, unworked, and unknown artifacts. The most prevalent artifacts are beads with 1,041 artifacts. Bracelets and unknown artifacts follow beads with 383 and 244 artifacts respectively.

Wupatki Pueblo and the Sinagua sites of Elden Pueblo, Ridge Ruin, and Winona Village have seven artifact types in common: bead, bracelet, pendant, tinkler, ring, worked shell, and unworked shell. At both Wupatki Pueblo and the Sinagua sites, beads are the most prevalent and bracelets are the second most prevalent.

Since beads and bracelets are both the most prevalent at Wupatki Pueblo and the Sinagua sites, I conducted chi-square tests to determine the significance of these shell artifacts within Wupatki Pueblo and the Sinagua cultural area. The results of the chi-square test for beads (Table 6.3) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to beads and non-beads is highly significant ($X^2 = 102.4243$, $p < .00001$). The results of the chi-square test for bracelets (Table 6.4) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to bracelets and non-bracelets is highly significant ($X^2 = 5.4992$, $p < .00001$). Apparently, the inhabitants of the Sinagua sites had a greater preference for Hohokam style bracelets than the inhabitants of Wupatki Pueblo.

Table 6.3. Chi-square tests for beads and non-beads from Wupatki Pueblo and the Sinagua sites.

	Beads	**Non-beads**	**Totals**
Wupatki Pueblo	1222	622	1844
Sinagua	1041	1030	2071
Totals	2263	1652	3915

Table 6.4. Chi-square tests for bracelets and non-bracelets from Wupatki Pueblo and the Sinagua sites.

	Bracelets	**Non-bracelets**	**Totals**
Wupatki Pueblo	186	1698	1844
Sinagua	383	1688	2071
Totals	569	3346	3915

Completeness. At both Wupatki Pueblo and the Sinagua sites artifacts are either fragmented or whole. At Wupatki Pueblo, with bracelets, tinklers, worked shell, unworked shell, rings, needles, and trumpets, there are more fragments present than whole objects. With beads, ornaments, mosaics, pendants, discs, and figurines, there are more whole objects than fragments. The most commonly found whole objects are beads. The most commonly found fragmented objects are bracelets and tinklers.

At the Sinagua sites, the most commonly found whole objects are beads and unknown artifacts. The most commonly found fragmented objects are beads, bracelets, unknown artifacts, and pendants.

Both Wupatki Pueblo and the Sinagua sites have beads as the most commonly found whole objects. The most commonly found fragmented objects in both cultures are bracelets. Wupatki Pueblo also has a high presence of fragmented tinklers while the Sinagua sites have a high presence of fragmented beads, pendants, and unknown artifacts.

Since the artifacts at Wupatki Pueblo and the Sinagua sites are either whole or fragments, I conducted chi-square tests to determine the significance of the completeness of artifacts within Wupatki Pueblo and the Sinagua cultural area. The results of the chi-square test for completeness (Table 6.5) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to whole artifacts and fragments is highly significant (X^2 =792.2662, p < .00001).

Table 6.5. Chi-square test for whole artifacts and fragments from Wupatki Pueblo and the Sinagua sites.

	Whole	**Fragments**	**Totals**
Wupatki Pueblo	1381	463	1844
Sinagua	618	1453	2071
Totals	1999	1916	3915

Characteristics. Some of the shell at Wupatki Pueblo exhibits specific characteristics such as burnt, smoothed, polished, incised, and reworked. Burnt shell only consists of bracelets and pendants. Smoothed shell consists of bracelets, mosaics, tinklers, worked, and unworked shell. Polished shell consists of bracelets, rings, and pendants. Incised shell consists of bracelets, needles, ornaments, pendants, rings, tinklers, and worked shell. Reworked shell consists of bracelets, needles, pendants, tinklers, and worked shell.

At the Sinagua sites, the shell exhibits the characteristics of burnt, polished, incised, and reworked. The burnt shell consists of bracelets, bracelets/pendants, discs, inlays, pendants, rings, tinklers, utility shell, and unknown shell. The polished shell consists of beads, bracelets, pendants, rings, tinklers, utility shell, and unknown shell. The incised shell consists of beads, bracelets, bracelets/pendants, pendants, tinklers, unworked shell, worked shell, and unknown shell. Reworked shell consists of bracelets, bracelets/pendants, pendants, tinklers, utility shell, worked shell, and unknown shell.

Both Wupatki Pueblo and the Sinagua sites have burnt, polished, incised, and reworked shell. For burnt shell, both Wupatki Pueblo and the Sinagua sites have evidence of burnt bracelets and pendants. For polished shell, both cultures have polished bracelets, rings, and pendants. For incised shell, both cultures have evidence of incised bracelets, pendants, and worked shell. For reworked shell, both cultures show evidence of reworked bracelets, pendants, tinklers, and worked shell. The Sinagua sites have evidence of more artifacts in each category of characteristics.

What is unusual about the Sinagua sites is that one site, Elden Pueblo, has evidence of shell debitage. There is no evidence of shell debitage at Wupatki Pueblo or the other two Sinagua sites, which indicates that shell manufacturing most likely occurred at Elden Pueblo, but did not take place at Wupatki Pueblo or the other Sinagua sites considered in this thesis: Ridge Ruin and Winona Village.

Since both Wupatki Pueblo and the Sinagua sites have artifacts that show evidence of burning, polishing, reworking, and incising, I conducted chi-square tests to determine the significance of these characteristics within Wupatki Pueblo and the Sinagua cultural area. The results of the chi-square test for burnt artifacts (Table 6.6) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to burnt and non-burnt artifacts is highly significant ($X^2 = 32.7915$, $p < .00001$). The results of the chi-square test for polished artifacts (Table 6.7) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to polished and non-polished artifacts is highly significant ($X^2 = 91.4247$, $p < .00001$).

Table 6.6. Chi-square test for burnt and non-burnt artifacts from Wupatki Pueblo and the Sinagua sites.

	Burnt	**Non-burnt**	**Totals**
Wupatki Pueblo	6	1838	1844
Sinagua	53	2018	2071
Totals	59	3856	3915

Table 6.7. Chi-square test for polished and non-polished artifacts from Wupatki Pueblo and the Sinagua sites.

	Polished	**Non-polished**	**Totals**
Wupatki Pueblo	4	1840	1844
Sinagua	112	1959	2071
Totals	116	3799	3915

The results of the chi-square test for reworked artifacts (Table 6.8) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to reworked and non-reworked artifacts is not significant ($X^2 = 1.4795$, $p = .223845$). With this result, there is low confidence that the samples are different due to low significance meaning that the reworked artifacts from Wupatki Pueblo and the Sinagua sites are similar in assemblages meaning that about the same amount of reworking of shell artifacts occurred at Wupatki Pueblo and the Sinagua sites. The results of the chi-square test for incised artifacts (Table 6.9) suggest that the difference between Wupatki Pueblo and the Sinagua sites with respect to incised and non-incised artifacts is not significant (X^2 = .0283, p = .866485). With this result, there is low confidence that the samples are different due to low significance. This means that the incised artifacts from Wupatki Pueblo and the Sinagua sites are similar in assemblages meaning that about the same amount of incising of shell artifacts occurred at Wupatki Pueblo and the Sinagua sites.

Table 6.8. Chi-square test for reworked and non-reworked artifacts from Wupatki Pueblo and the Sinagua sites.

	Reworked	**Non-reworked**	**Totals**
Wupatki Pueblo	18	1826	1844
Sinagua	29	2042	2071
Totals	47	3868	3915

Table 6.9. Chi-square test for incised and non-incised artifacts from Wupatki Pueblo and the Sinagua sites.

	Incised	**Non-incised**	**Totals**
Wupatki Pueblo	27	1817	1844
Sinagua	29	2042	2071
Totals	56	3859	3915

Location. The shell at Wupatki Pueblo is located in rooms, trenches, trash mounds, retaining walls, room trash, on the surface, in the amphitheater, and in the ballcourt. The shell at the Sinagua sites is located in pueblos, pithouses, kivas, rooms, burials, burial pits, walls, trenches, trash mounds, cremations, hearths, room fill, room trash, above the floor, below the surface, on the surface, cists, floor, sections, and unknown locations. In comparison, archaeologists found shell in rooms, trenches, trash mounds, room trash, and on the surface at Wupatki Pueblo and at the Sinagua sites. At Wupatki Pueblo, archaeologists also found shell in retaining walls, the amphitheater, and in the ballcourt. At the Sinagua sites, archaeologists also found shell in pueblos, pithouses, kivas, burials, burial pits, walls, cremations, hearths, cists, floor, sections, above the floor, below the surface, and unknown locations.

Wupatki Pueblo Compared to Hohokam Sites

In comparing the shell assemblage from Wupatki Pueblo to the two Hohokam sites, Wupatki Pueblo has 1,844 shell artifacts and the Hohokam sites have a total of 19,943 shell artifacts. The shell assemblage from Wupatki Pueblo consists of 22 different genera and 13 different types of artifacts. The shell assemblage from the Hohokam sites consists of 34 different genera and eight different types of artifacts. The completeness for both Wupatki Pueblo and the Hohokam sites ranges from fragments to whole. Wupatki Pueblo has evidence of burnt, smoothed, polished, incised, and reworked shell and the Hohokam sites have evidence of reworked shell. Within the site at Wupatki Pueblo, archaeologists found shell artifacts in rooms, trenches, trash mounds, retaining walls, room trash, on the surface, in the amphitheater, and in the ballcourt. Within the Hohokam sites, archaeologists found shell artifacts in formal structures, informal structures, small structures, temporary structures, trash pits, caches, cremations, borrow pits, pits, roasting pits, and unexcavated structures.

Shell Genera. The shell assemblage from Wupatki Pueblo consists of 22 different genera: *Aequipecten*, *Anodonta*, *Cardium*, *Clima*, *Conus*, *Cowry*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Murex*, *Nassarius*, *Naticidae*, *Neritina*, *Olivella*, *Oreohelix*, *Pecten*, *Polinices*, *Spondylus*, *Spondylus/Chama*, *Strombus*, and *Turritella*. The assemblage also contains six unidentified categories: crinoid fossil, unidentified gastropod, unidentified marine bivalve, unidentified univalve, unidentified mollusk, and unknown. *Olivella* is the most prevalent with 595 artifacts. *Glycymeris*, *Spondylus*, and *Conus* follow *Olivella* with 341, 321, and 170 artifacts respectively.

The shell assemblage from the Hohokam sites consists of 34 different genera: *Argopecten*, *Anachis*, *Anadara*, *Cardita*, *Cerithidea*, *Chama*, *Chione*, *Chione/Protothaca*, *Codakia*, *Columbella*, *Conus*, *Cypraea*, *Dosinia*, *Glycymeris*, *Glycymeris*/*Dosinia*, *Haliotis*, *Laevicardium*, *Megapitaria*, *Melongena*, *Nassarius*, *Olivella*, *Pecten*, *Pinctada/Pteria*, *Protathaca*, *Pteria*, *Spondylus*, *Spondylus/Chama*, *Strombus*, *Theodoxus*, *Trachycardium*, *Trivia*, *Turritella*, *Vermetus/Vernicularia*, and *Vermitidae*. The assemblage also contains four unidentified categories: indeterminate nacreous, indeterminate bivalve, indeterminate gastropod, and indeterminate operculum. *Glycymeris* is the most prevalent with 17,569 artifacts. *Dosinia* is the second most prevalent with 590 artifacts. *Spondylus* follows *Dosinia* with 557 artifacts.

Wupatki Pueblo and the Hohokam sites have 11 genera in common: *Conus*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Nassarius*, *Olivella*, *Pecten*, *Spondylus*, *Spondylus*/*Chama*, *Strombus*, and *Turritella*. Both assemblages also contain two unidentified categories: unidentified gastropod and unidentified bivalve. Both Wupatki Pueblo and the Hohokam sites have *Glycymeris* and *Spondylus* as two of the most prevalent genera. While Wupatki Pueblo has *Olivella* as the most prevalent genus and *Conus* as the third most prevalent genus, *Olivella* and *Conus* are not part of the most prevalent genera at the Hohokam sites. Similarly, *Dosinia* is the second most prevalent shell at the Hohokam sites, but it is not common at Wupatki Pueblo.

Since *Glycymeris* is prevalent at Wupatki Pueblo and the Hohokam sites, I conducted chi-square tests to determine the significance of this shell genera within

Wupatki Pueblo and the Hohokam cultural area. The results of the chi-square test for *Glycymeris* (Table 6.10) suggest that the difference between Wupatki Pueblo and the Hohokam sites with respect to *Glycymeris* and non-*Glycymeris* artifacts is highly significant (X^2 = 5590.1271, p < .00001).

Table 6.10. Chi-square test for *Glycymeris* and non-*Glycymeris* artifacts from Wupatki Pueblo and the Hohokam sites.

	Glycymeris	**Non-*Glycymeris***	**Totals**
Wupatki Pueblo	341	1503	1844
Hohokam	17569	2374	19943
Totals	17910	3877	21787

Artifact Types. The shell assemblage at Wupatki Pueblo consists of 13 different artifact types: bracelet, bead, ornament, mosaic, pendant, tinkler, ring, needle, disc, figurine, trumpet, worked shell, and unworked shell. The most prevalent artifact types are beads with 1,222 artifacts. Following beads are bracelets, tinklers, and unworked shell with 186, 159, and 154 artifacts respectively.

The shell assemblage at the Hohokam sites consists of eight different artifact types: bead, bracelet, pendant, ornament, ring, unworked shell, worked shell, and debitage. Debitage is the most prevalent artifact type with 16,774 artifacts. There are 205 finished artifacts consisting of bead, bracelet, pendant, ornament, ring, unworked shell, and worked shell. Within finished artifacts, there are 89 bracelets, 76 beads, 22 pendants, and nine rings/pendants.

Both Wupatki Pueblo and the Hohokam sites have a high presence of finished artifacts such as beads, bracelets, and pendants. While the most prevalent artifact at the Hohokam sites is debitage, debitage is not present at all at Wupatki Pueblo. The high presence of shell debitage at the Hohokam sites indicates shell manufacturing. The most prevalent debitage at the Hohokam sites is *Glycymeris* bracelet manufacturing debitage. This indicates that *Glycymeris* bracelets were being manufactured at Hohokam sites. The low frequency of *Glycymeris* bracelets at these Hohokam sites indicates that the manufactured *Glycymeris* bracelets were trade to other cultures, such as the Ancestral Puebloans and Sinagua. This can also be verified by the high presence of *Glycymeris* bracelets at Ancestral Puebloan and Sinagua sites.

Since beads and bracelets are both prevalent at Wupatki Pueblo and the Hohokam sites, I conducted chi-square tests to determine the significance of these shell artifacts within Wupatki Pueblo and the Hohokam cultural area. The results of the chi-square test for beads (Table 6.11) suggest that the difference between Wupatki Pueblo and the Hohokam sites with respect to beads and non-beads is highly significant (X^2 = 130787019, $p < .00001$). The results of the chi-square test for bracelets (Table 6.12) suggest that the difference between Wupatki Pueblo and the Hohokam sites with respect to bracelets and non-bracelets is highly significant ($X^2 = 1258.7344$, $p < .00001$). This is significant because it shows that there is not the same presence of Hohokam bracelets at the Hohokam sites as there are at Wupatki Pueblo.

Table 6.11. Chi-square test for beads and non-beads at Wupatki Pueblo and the Hohokam sites.

	Beads	**Non-beads**	**Totals**
Wupatki Pueblo	1222	622	1844
Hohokam	76	19867	19943
Totals	1298	20489	21787

Table 6.12. Chi-square test for bracelets and non-bracelets at Wupatki Pueblo and the Hohokam sites.

	Bracelets	**Non-bracelets**	**Totals**
Wupatki Pueblo	186	1658	1844
Hohokam	89	19854	19943
Totals	275	21512	21787

Completeness. At both Wupatki Pueblo and the Hohokam sites artifacts are either fragmented or whole. At Wupatki Pueblo, with bracelets, tinklers, worked shell, unworked shell, rings, needles, and trumpets, there are more fragments present than whole objects. With beads, ornaments, mosaics, pendants, discs, and figurines, there are more whole objects than fragments. The most commonly found whole objects are beads. The most commonly found fragmented objects are bracelets and tinklers.

At the Hohokam sites, the shell artifacts are either whole, fragmented, or indeterminate. The legacy data did not specify artifact types when looking at completeness. Therefore, I conclude that the most commonly found whole objects are worked ornaments and the most commonly found fragmented objects are debitage.

When comparing completeness of the shell assemblage of Wupatki Pueblo to the Hohokam sites, there are only differences. The most commonly found whole objects at Wupatki Pueblo are beads and the most commonly found whole objects at the Hohokam sites are worked ornaments. The most commonly found fragmented objects at Wupatki Pueblo are bracelets and tinklers and the most commonly found fragmented object at the Hohokam sites is debitage.

Since the artifacts at Wupatki Pueblo and the Hohokam sites are either whole or fragments, I conducted chi-square tests to determine the significance of the completeness of artifacts within Wupatki Pueblo and the Hohokam cultural area. The results of the chi-square test for completeness (Table 6.13) suggest that the difference between Wupatki Pueblo and the Hohokam sites with respect to whole artifacts and fragments is highly significant ($X^2 = 4714.7346$, $p < .00001$).

Table 6.13. Chi-square test for whole artifacts and fragments at Wupatki Pueblo and the Hohokam sites.

	Whole	**Fragments**	**Totals**
Wupatki Pueblo	1381	463	1844
Hohokam	2324	17379	19703
Totals	3705	17842	21547

Characteristics. Some of the shell at Wupatki Pueblo exhibits specific characteristics such as burning, smoothing, polishing, incising, and reworking. Burnt shell only consists of bracelets and pendants. Smoothed shell consists of bracelets, mosaics, tinklers, worked, and unworked shell. Polished shell consists of bracelets, rings, and pendants. Incised shell consists of bracelets, needles, ornaments, pendants, rings, tinklers, and worked shell. Reworked shell consists of bracelets, needles, pendants, tinklers, and worked shell.

While the shell from Wupatki Pueblo exhibits burning, smoothing, polishing, incising, and reworking, the shell from the Hohokam sites only exhibits reworking. The reworked artifacts at both Wupatki Pueblo and the Hohokam sites consist of ornaments. At Wupatki Pueblo, bracelets, needles, pendants, tinklers, and worked shell show evidence of reworking. At the Hohokam sites, it not known which specific ornament types show evidence of reworking.

Since both Wupatki Pueblo and the Hohokam sites have artifacts that show evidence of reworking, I conducted chi-square tests to determine the significance of these characteristics within Wupatki Pueblo and the Hohokam cultural area. The results of the chi-square test for reworked artifacts (Table 6.14) suggest that the difference between Wupatki Pueblo and the Hohokam sites with respect to reworked and non-reworked artifacts is highly significant ($X^2 = 107.7045$, $p < .00001$).

Table 6.14. Chi-square test for reworked and non-reworked shell from Wupatki Pueblo and the Hohokam sites.

	Reworked	Non-reworked	Totals
Wupatki Pueblo	18	1826	1844
Hohokam	11	19932	19943
Totals	29	21758	21787

Location. The shell at Wupatki Pueblo is located in rooms, trenches, trash mounds, retaining walls, room trash, on the surface, in the amphitheater, and in the ballcourt. The shell at the Hohokam sites is located in formal structures, informal structures, small structures, temporary structures, trash pits, caches, cremations, borrow pits, pits, roasting pits, and unexcavated structures. In comparison, archaeologists found shell artifacts in trash mounds at Wupatki Pueblo and at the Hohokam sites. At Wupatki Pueblo, archaeologists also found shell artifacts in rooms, trenches, room trash, retaining walls, the amphitheater, and in the ballcourt. At the Hohokam sites, archaeologists also found shell artifacts in formal structures, informal structures, small structures, temporary structures, caches, cremations, borrow pits, pits, roasting pits, and unexcavated structures.

Conclusion

This chapter summarized the shell assemblages from each site: Wupatki Pueblo, Elden Pueblo, Ridge Ruin, Winona Village, Shelltown, and the Hind Site. I analyzed the shell assemblages by genera, artifact types, completeness, characteristics, and location. I also conducted a spatial analysis on the shell from Wupatki Pueblo to determine discernable consumer patterns and potential elite areas. I then compared the shell assemblage of Wupatki Pueblo to the shell assemblages of the Sinagua and Hohokam sites.

In conclusion, the results of my study showed that there are similarities between the shell assemblages of Wupatki Pueblo and the Sinagua sites. There are also similarities between the shell assemblages of Wupatki Pueblo and the Hohokam sites. At Wupatki Pueblo, there is potential evidence of elite areas based on the locations where archaeologists found shell artifacts. Analysis with other prestige goods needs to be conducted to determine if these areas are actually elite areas.

Overall, there is significant evidence for Hohokam influence and presence at Wupatki Pueblo through shell artifacts. Out of 1,844 shell artifacts from Wupatki Pueblo, 1,115 show evidence of Hohokam manufacturing techniques. It is significant that over 60 percent of the shell assemblage from Wupatki Pueblo shows Hohokam manufacturing techniques. This indicates that it is most likely that the Hohokam manufactured and traded shell objects to the people of Wupatki Pueblo and that the people of Wupatki Pueblo did not manufacture shell objects.

CHAPTER SEVEN
DISCUSSION AND CONCLUSIONS ON ARCHAEOLOGICAL SHELL FOUND AT ANCESTRAL PUEBLOAN, SINAGUA, AND HOHOKAM SITES

My research has examined prehistoric shell artifacts at Ancestral Puebloan, Sinagua, and Hohokam sites. I looked for evidence of Hohokam manufacturing techniques on shell from Wupatki Pueblo, an Ancestral Puebloan site. If Hohokam manufacturing techniques are present on the shell at Wupatki Pueblo, this suggests that the Hohokam manufactured shell objects and traded the shell objects to Wupatki Pueblo. This also suggests that shell manufacturing did not take place at Wupatki Pueblo. I compared the shell assemblage from Wupatki Pueblo to the shell assemblages of three Sinagua sites and two Hohokam sites to determine similarities and differences. This chapter discusses my research objectives, results, and recommendations for future research.

Research Objectives

Throughout this thesis, I worked off of three hypotheses. I hypothesized that the residents of Wupatki Pueblo were not manufacturing shell objects. I hypothesized that the Hohokam were manufacturing shell objects and trading these objects with the people of Wupatki Pueblo. I also hypothesized that the Sinagua sites used in the comparative study will exhibit similar shell assemblages to Wupatki Pueblo due to their close proximity to one another and due to both having trade relationships with the Hohokam.

Results

To summarize patterns in the Ancestral Puebloan shell assemblage of Wupatki Pueblo, Wupatki Pueblo has a total of 1,844 shell artifacts consisting of 22 different genera and 13 different artifact types. The completeness of the objects ranges from fragmented to whole. Wupatki Pueblo has evidence of burnt, smoothed, polished, incised, and reworked shell. Within the site of Wupatki Pueblo, archaeologists found shell artifacts in rooms, trenches, trash mounds, retaining walls, room trash, on the surface, in the amphitheater, and in the ballcourt.

The Sinagua sites have a total of 2,071 shell artifacts. The shell assemblage from the Sinagua sites consists of 26 different genera and 17 different types of artifacts. The completeness at the Sinagua sites ranges from fragmented to whole. The Sinagua sites have evidence of burnt, polished, incised, and reworked shell. Within the Sinagua sites, archaeologists found shell artifacts in pueblos, pithouses, kivas, rooms, burials, burial pits, walls, trenches, trash mounds, cremations, hearths, room fill, room trash, above the floor, below the surface, on the surface, cists, floor, sections, and unknown locations.

The Hohokam sites have a total of 19,943 shell artifacts. The shell assemblage from the Hohokam sites consists of 34 different genera and eight different types of artifacts. The completeness of the shell ranges from fragmented to whole. There is only evidence of reworked shell. Within the Hohokam sites, archaeologists recovered shell artifacts from formal structures, informal structures, small structures, temporary structures, trash pits, caches, cremations, borrow pits, pits, roasting pits, and unexcavated structures.

Wupatki Pueblo Compared to Sinagua Sites. Both Wupatki Pueblo and the Sinagua sites have similar shell genera present. The shell assemblages from both cultures contain 14 of the same genera: *Anodonta*, *Cardium*, *Conus*, *Dentalium*, *Glycymeris*, *Haliotis*, *Laevicardium*, *Nassarius*, *Olivella*, *Oreohelix*, *Pecten*, *Spondylus*, *Spondylus/Chama*, and *Turritella*. Both assemblages also contain three of the same unknown categories: unknown bivalve, unknown univalve, and unknown. Both Wupatki Pueblo and the Sinagua sites had *Olivella* as the most prevalent shell genus present. *Glycymeris* follows *Olivella* in both cultures.

Wupatki Pueblo and the Sinagua sites have seven artifact types in common: bead, bracelet, pendant, tinkler, ring, worked shell, and unworked shell. At both Wupatki Pueblo and the Sinagua sites beads are the most prevalent and bracelets are the second most prevalent.

At both Wupatki Pueblo and the Sinagua sites artifacts are either fragmented or whole. Both Wupatki Pueblo and the Sinagua sites have beads as the most commonly found whole objects. The most commonly found fragmented objects in both cultures are bracelets. Wupatki Pueblo also has a high presence of fragmented tinklers while the Sinagua sites have a high presence of fragmented beads, pendants, and unknown artifacts.

Both Wupatki Pueblo and the Sinagua sites have burnt, polished, incised, and reworked shell. For burnt shell, both Wupatki Pueblo and the Sinagua sites have evidence of burnt bracelets and pendants. For polished shell, both cultures have polished bracelets, rings, and pendants. For incised shell, both cultures have evidence of incised bracelets, pendants, and worked shell. For reworked shell, both cultures show evidence of reworked bracelets, pendants, tinklers, and worked shell. The Sinagua sites have evidence of more artifacts in each category of characteristics.

What is unusual about the Sinagua sites is that one site, Elden Pueblo, has evidence of shell debitage. There is no evidence of shell debitage at Wupatki Pueblo or the other two Sinagua sites indicating that shell manufacturing most likely occurred at Elden Pueblo, but did not take place at Wupatki Pueblo or the other Sinagua sites considered in this thesis: Ridge Ruin and Winona Village.

Wupatki Pueblo Compared to Hohokam Sites. Wupatki Pueblo and the Hohokam sites have 11 genera in common: *Conus*, *Glycymeris*, *Haliotis, Laevicardium*, *Nassarius*, *Olivella*, *Pecten*, *Spondylus*, *Spondylus*/*Chama*, *Strombus*, and *Turritella*. Both assemblages also contain two unidentified categories: unidentified gastropod and unidentified bivalve. Both Wupatki Pueblo and the Hohokam sites have *Glycymeris* and *Spondylus* as two of the most prevalent genera. While Wupatki Pueblo has *Olivella* as the most prevalent genus and *Conus* as the third most prevalent genus, *Olivella* and *Conus* are not part of the most prevalent genera at the Hohokam sites. Similarly, *Dosinia* is the second most prevalent shell at the Hohokam sites, but it is not prevalent at Wupatki Pueblo.

Both Wupatki Pueblo and the Hohokam sites have a high presence of finished artifacts such as beads, bracelets, and pendants. While the most prevalent artifact at the Hohokam sites is debitage, debitage is not present at all at Wupatki Pueblo. The high presence of shell debitage at the Hohokam sites indicates shell manufacturing. The most prevalent debitage at the Hohokam sites is *Glycymeris* bracelet manufacturing debitage, which indicates that *Glycymeris* bracelets were being manufactured at Hohokam sites. The low presence of *Glycymeris* bracelets at these Hohokam sites indicates that the manufactured *Glycymeris* bracelets were traded to other cultures, such as the Ancestral Puebloans and Sinagua. This can also be verified by the high presence of *Glycymeris* bracelets at Ancestral Puebloan and Sinagua sites.

At both Wupatki Pueblo and the Hohokam sites artifacts are either fragmented or whole. When comparing completeness of the shell assemblage of Wupatki Pueblo to the Hohokam sites, there are only differences. The most commonly found whole objects at Wupatki Pueblo are beads and the most commonly found whole objects at the Hohokam sites are worked ornaments. The most commonly found fragmented objects at Wupatki Pueblo are bracelets and tinklers and the most commonly found fragmented object at the Hohokam sites is debitage.

Regarding characteristics, the only similar characteristic between the shell assemblages of Wupatki Pueblo and the Hohokam sites is reworking. The reworked artifacts at both Wupatki Pueblo and the Hohokam sites consist of ornaments. At Wupatki Pueblo, bracelets, needles, pendants, tinklers, and worked shell show evidence of reworking. At the Hohokam sites, it not known which specific ornament types show evidence of reworking.

Hohokam Influence and Presence at Wupatki Pueblo. The presence of Hohokam influence or Hohokam manufacturing in the shell assemblage from Wupatki Pueblo can be seen through manufacturing techniques and designs. The assemblage consists of figurines, different styles of beads, different designs on bracelets, different designs on tinklers, and different pendant shapes. Hohokam manufacturing techniques are present on 1,115 out of 1,844 shell artifacts from Wupatki Pueblo. Of the remaining 729 artifacts, 250 do not exhibit Hohokam manufacturing techniques and 479 are unknown if they exhibit Hohokam manufacturing techniques. Therefore, approximately 60 percent of the shell assemblage from Wupatki Pueblo exhibits Hohokam shell manufacturing techniques.

The majority of artifacts that exhibit Hohokam manufacturing techniques are *Olivella* and S*pondylus* beads. These can be seen through the presence of disc, tubular, bilobed, and tabular beads, which are Hohokam in style. The next most prevalent Hohokam style artifacts are *Glycymeris* bracelets. Out of 184 *Glycymeris* bracelets, 182 are Hohokam in style. *Glycymeris* bracelets are a signifier of being Hohokam and the high presence of Hohokam style *Glycymeris* bracelets at Wupatki Pueblo indicates a strong Hohokam presence due to migration or trade or a combination of migration and trade. A majority of the *Glycymeris* bracelets are unmodified. For modified bracelets, the designs consist of diagonal lines, hatched triangles, and lizard motifs. Additionally, modifications to the umbos have been made, such as carved umbos into frogs and perforated umbos.

In addition to Hohokam style beads and bracelets are tinklers and figurines. The majority of *Conus* tinklers at Wupatki Pueblo are unmodified, but four exhibit incising. Figurines depict the forms of humans, lizards, and frogs.

Additionally, pendants found at Wupatki Pueblo differ in shape and exhibit Hohokam style. The pendants at Wupatki Pueblo exhibit oblong, tabular, disc, hook, needle, bilobed, bird, flying bird, lizard, rattlesnake, sunburst, and phallic shapes. Seven out of 61 pendants show incising. Because pendants are very distinct to time periods, the pendants indicate that the shell from Wupatki Pueblo is contemporaneous to the Hohokam Colonial, Sedentary, and Classic periods. This would indicate that the Hohokam style shell at Wupatki Pueblo ranged from A.D. 750 to A.D. 1450 and is contemporaneous with the Ancestral Puebloan chronology of Pueblo I to Pueblo IV, which ranges from A.D. 750 to A.D. 1400. Since Wupatki Pueblo was occupied from at most A.D. 900 to A.D. 1275, the Hohokam style shell artifacts would fit into the appropriate range of late Colonial, Sedentary, and early to middle Classic periods in Hohokam chronology. Occupation at Wupatki Pueblo was primarily from A.D. 1137 to A.D. 1275, which correlates to the Hohokam Classic period. Given the context, almost none of the shell from Wupatki Pueblo dates from A.D. 900 to A.D. 1137. Since all the date ranges correlate, this provides an even stronger explanation that Hohokam influence through trade, migration, or trade and migration occurred at Wupatki Pueblo.

A Return to Theoretical Perspectives

For this thesis, I used the theories of political economy, prestige model of exchange, and craft economies. I aimed to explain the difference in wealth and power between the Ancestral Puebloans of Wupatki Pueblo and the Hohokam based on exotic trade goods, determine elite rooms or areas in Wupatki Pueblo based on high concentrations of shell artifacts, and determine how the production of shell objects was shaped.

David Wilcox (1993) believes that Wupatki Pueblo was built by the “southern Kayenta” from southeast of Black Mesa where Chacoan-like great houses were built in the A.D. 1000s. He believes that the presence of a Hohokam style ballcourt at Wupatki Pueblo indicates formal interactions on a local scale between the Sinagua and Cohonina, on a regional scale between the Hohokam and Chacoans, and on a macroregional scale based on prestige goods from West Mexico. Because of Hohokam and Chacoan influences, Wupatki Pueblo was built to be strategically positioned and therefore was a gateway between Chacoan and Hohokam networks. The influences of Chaco and the Hohokam can be seen through ideology based on power at Wupatki Pueblo.

Wilcox's (1993) theory differs greatly from Barbara Mills's (2004) theory. Mills (2004) states that the presence of inalienable objects suggests there was not elite manipulation of exotic goods. Instead, people passed down exotic goods from generation to generation. This can be seen at Wupatki Pueblo through the presence of *Glycymeris* bracelets, which are signifiers of Hohokam identity. If *Glycymeris* bracelets are inalienable objects then it is most likely that Hohokam members either lived at Wupatki Pueblo or commonly frequented Wupatki Pueblo and passed down their bracelets from generation to generation. This would indicate multiethnicity at Wupatki Pueblo.

Mills (2007) also discusses how the intensification of craft production helped create new identities and negotiations for social inequalities that followed the migration of people to new communities. Migration changes social identity (Anthias 1998) and creates social, economic, and political asymmetries between hosts and guests (Esses et al. 1998). This could be seen at Wupatki Pueblo with Hohokam people having first-comer status (Mills 2000). Since Hohokam migrants would have been considered newcomers at Wupatki Pueblo, they would have been faced with inequality and would not have had access to the best resources. There would have been a distinct difference between the wealth and power of Ancestral Puebloans and the Hohokam at Wupatki Pueblo.

Mills (2007) believes that craft production and identity were interlinked. Producer and consumer identities determined what products were made and by whom. This can be seen at Wupatki Pueblo through shell artifacts. From my analysis, it seems as though the Hohokam manufactured shell artifacts and traded these products with the people of Wupatki Pueblo. Shell manufacturing was not occurring at Wupatki Pueblo by the Ancestral Puebloans. Therefore, the Hohokam were the producers and determined what shell products were made. The consumers were the Ancestral Puebloans of Wupatki Pueblo. The Hohokam had control in this political economy based on craft production and specialization of shell objects.

Recommendations for Further Research

This examination of shell from Ancestral Puebloan, Sinagua, and Hohokam sites has shown connections between these cultural groups. Specifically, there is a strong connection between the people of Wupatki Pueblo and the Hohokam. By looking at shell, there is now a better understanding of the function of shell in the relationship between the Ancestral Puebloans and Hohokam. To better define the function of shell, it would be useful to look at shell assemblages from more Ancestral Puebloan, Sinagua, and Hohokam sites. By having a larger sample size, patterns that are either similar to or different from Wupatki Pueblo could be identified. Looking at more sites would broaden our understandings of the relationship between the Ancestral Puebloans, Sinagua, and Hohokam based on shell trade.

While I only focused on Hohokam presence and influence at Wupatki Pueblo, additional research could be conducted to determine Chacoan presence and influence at Wupatki Pueblo. Shell artifacts would most likely not be analyzed for this, but pottery, faunal remains from macaws, and architectural features could be analyzed.

A more accurate comparison of shell assemblages could be conducted. This would include Ancestral Puebloan, Sinagua, and Hohokam sites from corresponding time periods. Since the Hohokam sites used in this thesis are earlier than the Ancestral Puebloan and Sinagua sites, a more accurate comparison should be conducted in the future with contemporaneous Hohokam sites. Additionally, these Hohokam sites could be habitation sites instead of solely shell manufacturing sites. To look further into shell at Wupatki Pueblo, research could be conducted to determine why there is such a large presence of Hohokam style shell at Wupatki Pueblo, but not at other Ancestral Puebloan sites or areas such as Keet Seel and Mesa Verde.

An examination of shell assemblages from sites that pre-date and post-date Wupatki Pueblo would be helpful in determining how the function and use of shell changes over time. Since temporal changes in shell for the Hohokam are well defined, it would be interesting to determine how shell has changed over time for the Ancestral Puebloans and Sinagua. This could also help aid in identifying what the function of shell was at Wupatki Pueblo and why people were importing shell, but not pottery.

Lastly, shell data from burials and cremations at Wupatki Pueblo could be added to the shell assemblage. This new shell data could be compared to the burials and cremations from the Sinagua and Hohokam sites used in this thesis.

Conclusions

Based on the data presented here, there is a strong connection between Wupatki Pueblo and the Hohokam. This connection could be based off of trade, migration, or co-habitation at Wupatki Pueblo. From the great presence of Hohokam manufacturing techniques seen on shell at Wupatki Pueblo, most likely the people of Wupatki Pueblo were not manufacturing shell objects. Instead, the Hohokam were manufacturing shell objects and either trading the shell with the people of Wupatki Pueblo or bringing the shell with them during migration. The fact that there is no evidence of shell debitage or stone tools used for shell manufacturing at Wupatki Pueblo also proves that shell manufacturing was not occurring at Wupatki Pueblo and was instead being completed by the Hohokam.

In comparing the shell assemblage of Wupatki Pueblo to Sinagua sites, it is clear that the assemblages are quite similar in genus, artifact types, completeness, characteristics, and location. This indicates that there is also a strong influence of the Hohokam on Sinagua people.

Overall, my results proved my hypotheses. It is most likely that the residents of Wupatki Pueblo were not manufacturing shell objects. It is most likely that the Hohokam were manufacturing shell objects and trading these objects with the people of Wupatki Pueblo. Lastly, the Sinagua sites used in this comparative study exhibited similar shell assemblages to Wupatki Pueblo indicating a close relationship between the people of Wupatki Pueblo and the Sinagua as well as a close relationship between the Sinagua and the Hohokam.

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APPENDIX A
FULL SHELL DATABASE OF WUPATKI PUEBLO FROM MNA, WACC, AND WUPATKI PUEBLO NATIONAL MONUMENT VISITOR CENTER

Catalog #	Object	Within Site	Genus and Species	Count	Hohokam Manufacturing Technique?	Notes	Bur-nt?	Smoo-thed?	Poli-shed?	Inci-sed?	Rewo-rked?
WUPA 386	BEADS	ROOM 25	Unknown	48	Yes	48 shell disc beads	No	No	No	No	No
WUPA 397	BRACELET FRAGMENT	SURFACE	*Glycymeris*	10	Yes	2 bracelet fragments with one end shaped into needle, 1 perforated umbo, 6 bracelet fragments, 1 incised bracelet fragment	No	No	No	No	No
WUPA 398	BRACELET	ROOM 24, FLOOR	*Glycymeris*	1	Yes		No	Yes	No	No	No
WUPA 399	BRACELET	ROOM 24, FLOOR	*Glycymeris*	1	Yes		No	Yes	Yes	No	No
WUPA 400	BRACELET	ROOM 24, 0-3'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 401	BRACELET	ROOM 24, SUBFLOOR TRENCH AGAINST NORTH WALL	*Glycymeris*	1	Yes	Burnt	Yes	No	Yes	No	No
WUPA 402	BRACELET	ROOM 39, SOUTH SIDE, BETWEEN FLOORS 1 & 2	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 403	BRACELET	ROOM 39, SOUTH	*Glycymeris*	1	Yes		No	No	No	No	No

		SIDE, BETWEEN FLOORS 1 & 2									
WUPA 404	BRACELET	ROOM 39, BOTTOM FLOOR	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 405	BRACELET	ROOM 40, NORTH SIDE, 0-2'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 406	BRACELET	ROOM 27, LAYER 1, 0-36"	*Glycymeris*	2	Yes	2 bracelet fragments; 1 fragment with perforated umbo	No	No	No	No	No
WUPA 407	BRACELET	ROOM 27, LAYER 1, 0-36"	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 408	BRACELET	ROOM 27, LAYER 1, 0-36"	*Glycymeris*	1	Yes	Carved umbo; Sedentary or Classic period	No	No	No	Yes	No
WUPA 409	BRACELET	ROOM 40, 4.5-6.0'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 410	BRACELET	ROOM 58, BOX 2 FROM TOP	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 411	BRACELET	ROOM 58, SOUTH HALF, 3-4.5'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 412	BRACELET	ROOM 73, SOUTH HALF, LEVEL 3, 76-85"	*Glycymeris*	1	Yes	Perforated umbo	No	No	No	No	No
WUPA 413	BRACELET	ROOM 73, SOUTH HALF, LEVEL 3	*Glycymeris*	1	Yes	Incised design of hatched triangles; Sedentary period	No	No	No	Yes	No
WUPA 414	BRACELET	ROOM 73, SOUTH HALF, LEVEL 3	*Glycymeris*	1	Yes		No	No	No	No	No

WUPA 415	BRACELET	ROOM 73, SOUTH HALF, LEVEL 3	*Glycymeris*	1	Yes	Lightly incised	No	No	No	Yes	No
WUPA 416	BRACELET	ROOM 73, LAYER 4	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 417	BRACELET	ROOM 73, NORTH HALF, LAYER 1, 0-36"	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 418	BRACELET	WUPATKI ROOM 73, N. HALF, LAYER 2.	*Glycymeris*	1	Yes	Lizard pendant- Classic period	No	No	No	No	No
WUPA 419	BRACELET	ROOM 80, NORTH SIDE, 3-5'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 420	BRACELET	ROOM 80, 6-7' ABOVE FLOOR	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 421	BRACELET	ROOM 80, NORTH SIDE	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 422	BRACELET	ROOM 80, NORTH SIDE	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 423	BRACELET	ROOM 80, NORTH SIDE	*Glycymeris*	1	Yes		No	No	No	No	Yes
WUPA 424	BRACELET	ROOM 80, NORTH SIDE, 9-10'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 425	BRACELET	ROOM 81, 0-2'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 426	BRACELET	ROOM 81, SOUTH SIDE, 0-3'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 427	BRACELET	ROOM 81, SOUTH SIDE, 0-3'	*Glycymeris*	1	Yes		No	No	No	No	Yes
WUPA 428	BRACELET	RMS 80-40, SUBFLOOR TRENCH,(U	*Glycymeris*	1	Yes		No	No	No	No	No

		NDER FLOOR 1B) + NE CORNER OF TRENCH									
WUPA 429	BRACELET	ROOM 80-81, SOUTH SIDE, 3-4'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 430	BRACELET	ROOM 80-81, 6-7'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 431	BRACELET	ROOM 80-81, 6-7'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 432	BRACELET	ROOM 80-81, 5-6'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 433	BRACELET?	SURFACE	*Glycymeris*	1	Yes	Reworked bracelet fragment into double sided needle	No	No	No	No	Yes
WUPA 434	BRACELET?	ROOM 73, SOUTH HALF, 76-85"	*Glycymeris*	1	Yes	Reworked bracelet fragment into needle	No	No	No	No	Yes
WUPA 435	BRACELET?	ROOM 73, LAYER 4	*Glycymeris*	1	Yes	Reworked bracelet fragment into needle	No	No	No	No	Yes
WUPA 436	BRACELET?	ROOM 80, NORTH SIDE, 9-10'	*Glycymeris*	1	Yes	Reworked into pointed ends	No	No	No	No	Yes
WUPA 440	BEAD	ROOM 24 (FIELD NOTES)	*Olivella*	1	Yes	Disc beads	No	No	No	No	No
WUPA 440	BEAD	ROOM 24 (FIELD NOTES)	*Spondylus*	42	Yes	Disc beads	No	No	No	No	No
WUPA 441	BEAD	ROOM 73, SOUTH HALF, 76-85"	*Spondylus*	13	Yes	13 disc beads	No	No	No	No	No
WUPA 443	BEAD	ROOM 73, LAYER 4	*Glycymeris*	2	Yes	2 whole *Glycymeris* beads, 4	No	No	No	No	No

						Spondylus disc beads, and 1 *Glycymeris* bilobed pendant					
WUPA 443	PENDANT	ROOM 73, LAYER 4	*Glycymeris*	1	Yes	2 whole *Glycymeris* beads, 4 *Spondylus* disc beads, and 1 *Glycymeris* bilobed pendant	No	No	No	No	No
WUPA 443	BEAD	ROOM 73, LAYER 4	*Spondylus*	4	Yes	2 whole *Glycymeris* beads, 4 *Spondylus* disc beads, and 1 *Glycymeris* bilobed pendant	No	No	No	No	No
WUPA 444	BEAD	SURFACE	*Nassarius*	1	Yes	2 whole *Olivella* beads, 1 tubular *Olivella* bead, 1 whole *Nassarius* bead, and 1 unknown disc bead	No	No	No	No	No
WUPA 444	BEAD	SURFACE	*Olivella*	3	Yes	2 whole *Olivella* beads, 1 tubular *Olivella* bead, 1 whole *Nassarius* bead, and 1 unknown disc bead	No	No	No	No	No
WUPA 444	BEAD	SURFACE	Unknown	1	Yes	2 whole *Olivella* beads, 1 tubular *Olivella* bead, 1 whole *Nassarius* bead, and 1 unknown disc bead	No	No	No	No	No
WUPA 445	BEAD	ROOM 25, NORTH HALF, FLOOR & 1' ABOVE	Unknown	4	Yes	4 disc beads	No	No	No	No	No

WUPA 446	BEAD	ROOM 27, LAYER 1, 0-36"	*Nassarius*	1	Yes	10 *Olivella* tubular beads and 1 *Nassarius* whole bead	No	No	No	No	No
WUPA 446	BEAD	ROOM 27, LAYER 1, 0-36"	*Olivella*	10	Yes	10 *Olivella* tubular beads and 1 *Nassarius* whole bead	No	No	No	No	No
WUPA 447	BEAD	ROOM 73, LEVEL 3, SOUTH HALF, 76-85"	*Olivella*	9	Yes	7 tubular beads and 2 whole beads	No	No	No	No	No
WUPA 448	BEAD	ROOM 73, LAYER 1, 0-40"	*Conus*	1	Yes	1 whole *Conus* bead, 1 whole *Olivella* bead, and 1 tubular *Olivella* bead	No	No	No	No	No
WUPA 448	BEAD	ROOM 73, LAYER 1, 0-40"	*Olivella*	2	Yes	1 whole *Conus* bead, 1 whole *Olivella* bead, and 1 tubular *Olivella* bead	No	No	No	No	No
WUPA 449	BEAD	ROOM 73, N HALF, 5-6" ABOVE FLOOR, BELOW 84"	*Olivella*	1	Yes	Tubular bead	No	No	No	No	No
WUPA 450	BEAD	ROOM 80	*Nassarius*	1	Yes	1 *Nassarius*, 8 *Olivella* tubular beads, and 4 *Olivella* disc beads	No	No	No	No	No
WUPA 450	BEAD	ROOM 80	*Olivella*	12	Yes	1 *Nassarius*, 8 *Olivella* tubular beads, and 4 *Olivella* disc beads	No	No	No	No	No
WUPA 451	BEAD	ROOM 80-81, STRATUM 1, 0-1'	*Olivella*	3	Yes	3 tubular beads	No	No	No	No	No
WUPA 452	BEAD	ROOM 80-81,	*Nassarius*	1	Yes	1 whole *Nassarius* and 3	No	No	No	No	No

		STRATUM 7, 6-7'				*Olivella* tubular beads					
WUPA 452	BEAD	ROOM 80-81, STRATUM 7, 6-7'	*Olivella*	3	Yes	1 whole *Nassarius* and 3 *Olivella* tubular beads	No	No	No	No	No
WUPA 453	BEAD	ROOM 80-81, STRATUM 6, 5-6'	*Olivella*	3	Yes	1 whole bead and 2 tubular beads	No	No	No	No	No
WUPA 454	BEAD	ROOM 80-81, STRATUM 3, 2-3'	*Olivella*	1	Yes		No	No	No	No	No
WUPA 455	BEAD	ROOM 80-81, STRATUM 4, 3-4'	*Olivella*	1	Yes	Tubular bead	No	No	No	No	No
WUPA 456	BEAD	ROOM 25, SOUTH HALF, LAYER 3, 61" TO FLOOR	*Olivella*	43	Yes	43 tubular beads	No	No	No	No	No
WUPA 457	BEAD	ROOM 80-81, SOUTH SIDE, STRATUM 3, 2-3'	Unknown	1	Yes	Oblong wedge pendant	No	No	No	No	No
WUPA 458	BEAD	EAST SIDE, SOUTH UNIT, SURFACE	*Olivella*	1	Yes	Tubular bead	No	No	No	No	No
WUPA 459	BEAD	SURFACE	*Glycymeris*	1	Yes	3 *Olivella* tubular beads, 1 unknown disc bead, 1 whole *Nassarius* bead, and 1 whole *Glycymeris* bead	No	No	No	No	No

WUPA 459	BEAD	SURFACE	*Nassarius*	1	Yes	3 *Olivella* tubular beads, 1 unknown disc bead, 1 whole *Nassarius* bead, and 1 whole *Glycymeris* bead	No	No	No	No	No
WUPA 459	BEAD	SURFACE	*Olivella*	3	Yes	3 *Olivella* tubular beads, 1 unknown disc bead, 1 whole *Nassarius* bead, and 1 whole *Glycymeris* bead	No	No	No	No	No
WUPA 459	BEAD	SURFACE	Unknown	1	Yes	3 *Olivella* tubular beads, 1 unknown disc bead, 1 whole *Nassarius* bead, and 1 whole *Glycymeris* bead	No	No	No	No	No
WUPA 460	BEAD	ROOM 27	*Olivella*	6	Yes	1 whole bead, 3 tubular beads, and 2 disc beads	No	No	No	No	No
WUPA 461	BEAD	ROOM 39, SOUTH SIDE, BETWEEN FLOORS 1 & 2	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 462	BEAD	ROOM 39, BOTTOM FLOOR	*Olivella*	1	Yes	Tubular bead	No	No	No	No	No
WUPA 463	BEAD	ROOM 40, NORTH SIDE, 0-2' OR TOP 1-2'	*Olivella*	1	Yes	Tubular bead	No	No	No	No	No
WUPA 464	BEAD	ROOM 73, NORTH HALF,	*Olivella*	5	Yes	4 tubular beads and 1 whole bead	No	No	No	No	No

		LAYER 3, 60-84"									
WUPA 465	BEAD	ROOM 73, SOUTH HALF, LEVEL 3, 76-85"	Unknown	2	Yes	2 double-lobed pendants	No	No	No	No	No
WUPA 466	BEAD	ROOM 73, LAYER 4	Unknown	1	Yes	Double-lobed pendant	No	No	No	No	No
WUPA 467	BEAD	ROOM 24, 3-6'	*Olivella*	1	Yes	Tubular bead	No	No	No	No	No
WUPA 468	PENDANT	ROOM 39, BOTTOM FLOOR	*Glycymeris*	2	Unknown	1 pendant and 1 pendant fragment	No	No	No	No	No
WUPA 469	BEAD	ROOM 47, LEVEL 2, 36-76", IN FINE ASH REFUSE	*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 470	BEADS	ROOM 73, SOUTH HALF, LAYER 3, 76-85", + HIGHER FLOOR	*Glycymeris*	2	Unknown	2 whole beads	No	No	No	No	No
WUPA 471	BEAD	ROOM 73, SOUTH HALF, LEVEL 3, 76-85"	*Neritina luteofasciata miller*	1	Unknown		No	No	No	No	No
WUPA 472	BEADS	ROOM 80-81, SOUTH SIDE, 3-4'	*Olivella*	2	Yes	2 beads	No	No	No	No	No
WUPA 473	BEAD	ROOM 83, LAYER 1, 0-24"	*Conus*	1	Unknown		No	No	No	No	No
WUPA 474	TINKLER	SURFACE	*Conus*	1	Yes	Incised design	No	No	No	Yes	No
WUPA 475	PENDANT	ROOM 73, SOUTH HALF, LEVEL 3, 76-85"	*Turritella*	2	Unknown	2 pendants; Colonial to Classic period	No	No	No	No	No

WUPA 476	PENDANT	SURFACE	*Turritella*	1	Unknown		No	No	No	No	No
WUPA 477	PENDANT	ROOM 80, NORTH SIDE, 6'	*Turritella*	2	Unknown		No	No	No	No	No
WUPA 478	TINKLER	SURFACE	*Conus*	2	Unknown	2 tinkler fragments	No	No	No	No	No
WUPA 479	TINKLER	ROOM 24, FLOOR	*Conus*	1	Unknown	2 tinkler fragments	No	No	No	No	No
WUPA 480	TINKLER	ROOM 25, SOUTH HALF, FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 481	TINKLER	ROOM 25, SOUTH HALF, FLOOR	*Conus*	6	Unknown	6 tinkler fragments	No	No	No	No	No
WUPA 482	TINKLER	ROOM 25, NORTH HALF, FLOOR & 1' ABOVE	*Conus*	1	Unknown		No	No	No	No	No
WUPA 483	TINKLER	ROOM 27, LAYER 1, 0-36"	*Conus*	1	Unknown		No	No	No	No	No
WUPA 484	TINKLER	ROOM 39, SOUTH SIDE, BETWEEN FLOORS 1 & 2	*Conus*	2	Unknown	2 tinkler fragments	No	No	No	No	No
WUPA 485	TINKLER	ROOM 39, BOTTOM FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 486	TINKLER	ROOM 58, WEST HALF, TOP FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 487	TINKLER	ROOM 80	*Conus*	2	Unknown	2 tinkler fragments	No	No	No	No	No
WUPA 488	TINKLER	ROOM 81, 0-2'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 489	TINKLER	ROOM 73, SOUTH	*Conus*	4	Unknown	4 tinkler fragments	No	No	No	No	No

		HALF, 76-85"									
WUPA 490	TINKLER	ROOM 73, LAYER 4	*Conus*	3	Unknown	3 tinkler fragments	No	No	No	No	No
WUPA 491	TINKLER	ROOM 73, NORTH HALF, 60-84"	*Conus*	2	Unknown	2 tinkler fragments	No	No	No	No	No
WUPA 492	TINKLER	ROOM 73, LAYER 1, 0-40"	*Conus*	1	Unknown		No	No	No	No	No
WUPA 493	TINKLER	ROOM 73, LOWER FLOORED AREA WITH FIREPIT	*Conus*	1	Unknown		No	No	No	No	No
WUPA 494	TINKLER	ROOM 73, LOWER FLOORED AREA WITH FIREPIT	*Conus*	1	Unknown		No	No	No	No	No
WUPA 495	TINKLER	ROOM 80-81, SOUTH SIDE, 3-4'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 496	TINKLER	ROOM 80-81, 0-1'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 497	TINKLER	ROOM 80-81, 5-6'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 498	TINKLER	ROOM 80-81, 0-1'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 499	TINKLER	ROOM 80-81, 0-1'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 500	TINKLER	ROOM 80-81, IN VENT SHAFT	*Conus*	2	Unknown	2 tinkler fragments	No	No	No	No	No
WUPA 501	TINKLER	ROOM 80-81, 6-7'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 502	TINKLER	ROOM 80-81, 5-8'	*Conus*	2	Unknown	2 tinkler fragments	No	No	No	No	No
WUPA 503	TINKLER	ROOM 80-81, 2-3'	*Conus*	1	Unknown		No	No	No	No	No
WUPA 504	TINKLER	ROOM 80-81, 3-4'	*Conus*	1	Unknown		No	No	No	No	No

WUPA 505	SHELL, UNWORKED	SURFACE FIND	*Haliotis*	1	No		No	No	No	No	No
WUPA 506	SHELL, UNWORKED	ROOM 24, FLOOR	*Haliotis*	1	No		No	No	No	No	No
WUPA 507	SHELL, UNWORKED	ROOM 25, NORTH HALF, FLOOR & 1' ABOVE	*Haliotis*	1	No		No	No	No	No	No
WUPA 508	SHELL, UNWORKED	ROOM 26, LAYER 1, LAYER 2	*Haliotis*	1	Unknown	Exterior covered with mat black substance and green paint	No	No	No	No	No
WUPA 509	SHELL, WORKED	ROOM 27, 0-36"	*Haliotis*	3	No	3 worked pieces	No	No	No	No	No
WUPA 510	SHELL, WORKED	ROOM 39, SOUTH SIDE, BETWEEN FLOORS 1 & 2	*Haliotis*	5	Unknown	2 pieces with curved edges and 3 pieces unworked	No	No	No	No	No
WUPA 511	SHELL, WORKED	ROOM 73, NORTH HALF, 60-84"	*Haliotis*	1	Unknown		No	No	No	No	No
WUPA 512	SHELL, UNWORKED	ROOM 73, NORTH HALF, 36-60"	*Haliotis*	1	No		No	No	No	No	No
WUPA 513	SHELL, WORKED	ROOM 24, 0-3'	*Haliotis*	2	No	2 worked pieces	No	No	No	No	No
WUPA 514	SHELL, UNWORKED	ROOM 71, SOUTH SIDE, 2-4'	*Cardium*	1	No		No	No	No	No	No
WUPA 515	SHELL, UNWORKED	SURFACE FIND	*CF H. Fulgens Philippi*	1	No		No	No	No	No	No
WUPA 516	SHELL, UNWORKED?	SURFACE FIND	*Laevicardium*	1	No		No	No	No	No	No

WUPA 517	SHELL, UNWORKED	ROOM 24, 3-6'	*Cardium elatum sowerby*	2	No	2 unworked pieces	No	No	No	No	No
WUPA 518	SHELL, UNWORKED	ROOM 26, LAYER 1, LAYER 2	*Laevicardium*	1	No		No	No	No	No	No
WUPA 519	SHELL, UNWORKED	ROOM 26, LAYER 1, LAYER 2	*Cardium*	1	No		No	No	No	No	No
WUPA 520	SHELL, UNWORKED	ROOM 27	*Laevicardium elatum sowerby*	1	No		No	No	No	No	No
WUPA 521	SHELL, UNWORKED	ROOM 27	*Pecten*	1	No		No	No	No	No	No
WUPA 522	SHELL, UNWORKED	ROOM 27, 0-36"	*Pecten*	3	No	3 unworked pieces	No	No	No	No	No
WUPA 523	SHELL, UNWORKED	ROOM 27, 0-36"	*Pecten*	2	No	2 unworked pieces	No	No	No	No	No
WUPA 524	BEAD	ROOM 27, 0-36"	*Olivella*	1	Yes		No	No	No	No	No
WUPA 525	SHELL, UNWORKED	ROOM 58, SOUTH SIDE, 3-4.5'	*Pecten*	1	No		No	No	No	No	No
WUPA 526	SHELL, UNWORKED?	ROOM 73, SOUTH HALF, 76-85"	*Laevicardium*	3	No	3 unworked pieces	No	No	No	No	No
WUPA 527	SHELL, UNWORKED	ROOM 73, LAYER 4	*Laevicardium elatum sowerby*	1	No		No	No	No	No	No
WUPA 528	SHELL, WORKED	ROOM 73, N HALF, LAYER 4, 5-6" ABOVE FLOOR, + BELOW 84"	*Laevicardium elatum sowerby*	1	Yes	Possible bird shape; Pioneer to Classic period	No	No	No	No	No
WUPA 529	SHELL, UNWORKED	ROOM 80-81, 0-1'	*Anodonta*	1	No		No	No	No	No	No

WUPA 530	SHELL, UNWORKED	ROOM 80-81, 5-6'	*Olivella*	1	No		No	No	No	No	No
WUPA 531	SHELL, UNWORKED	ROOM 25, SOUTH HALF, 61" TO FLOOR	*Oreohelix CF. O Yavapai*	1	No		No	No	No	No	No
WUPA 532	SHELL, UNWORKED	ROOM 25, SOUTH HALF, 61" TO FLOOR	*Oreohelix CF. O Yavapai*	1	No		No	No	No	No	No
WUPA 533	SHELL, WORKED, BEAD?	ROOM 73, NORTH HALF, 36-60"	*Oreohelix CF. O Yavapai*	1	No		No	No	No	No	No
WUPA 534	SHELL, UNWORKED	ROOM 80, 6-7' ABOVE FLOOR	*Oreohelix CF. O Yavapai*	1	No		No	No	No	No	No
WUPA 535	SHELL, UNWORKED	ROOM 81	*Oreohelix CF. O Yavapai*	1	No		No	No	No	No	No
WUPA 536	RING	ROOM 27	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 537	RINGS	ROOM 27, 0-36"	*Glycymeris*	2	Yes	2 ring fragments	No	No	No	No	No
WUPA 538	RING	ROOM 73, NORTH HALF, 60-84"	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 539	RING	ROOM 80	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 540	PENDANT	SURFACE FIND, NORTH UNIT	*Clima Echinata*	1	Unknown	Hook shaped	No	No	No	No	No
WUPA 541	PENDANT?	SURFACE FIND	*Clima Echinata*	1	Unknown	Hook shaped	No	No	No	No	No
WUPA 542	PENDANT	SURFACE FIND	*Aequipecten circularis sowerby*	1	Unknown		No	No	No	No	No
WUPA 543	SHELL, UNWORKED	ROOM 73, NORTH HALF, 60-84"	*Pecten*	1	No		No	No	No	No	No

WUPA 544	PENDANT	ROOM 27, 0-36"	*Aequipecten circularis sowerby*	1	Yes	Oblong shaped; Classic period	No	No	No	No	No
WUPA 545	PENDANT	ROOM 80	*P. Circularis sowerby*	1	Unknown		No	No	No	Yes	No
WUPA 546	PENDANT?	SURFACE FIND	*Glycymeris*	1	Yes	Incised with 5 grooves; possibly Sedentary period	No	No	No	Yes	No
WUPA 547	PENDANT	SURFACE FIND	*Cardium*	1	Unknown	Incised	No	No	No	No	No
WUPA 548	PENDANT	ROOM 27, 0-36"	*Haliotis*	1	Yes	Flying bird form; Sedentary or Classic period	No	No	No	No	No
WUPA 549	PENDANT	ROOM 39, SOUTH SIDE, BETWEEN FLOORS 1 & 2	*Haliotis*	1	Unknown	Pendant perforated at both ends	No	No	No	No	No
WUPA 550	PENDANT	ROOM 73, SOUTH HALF, 76-85"	*Haliotis*	1	Yes	Sunburst pendant; Sedentary period	No	No	No	No	No
WUPA 551	PENDANT	ROOM 73, SOUTH HALF, 76-85"	*Laevicardium Elatum*	1	Yes	Flying bird shaped pendant; Sedentary or Classic period	No	No	No	No	No
WUPA 552	PENDANT	ROOM 73, SOUTH HALF, 76-85"	*Cardium*	1	Yes	Flying bird shaped pendant; Sedentary or Classic period	No	No	No	No	No
WUPA 553	PENDANT	ROOM 73, SOUTH HALF, 76-85"	*Pecten*	1	Yes	Oblong pendant; Colonial to Classic period	No	No	No	No	No
WUPA 554	PENDANT	ROOM 73, SOUTH HALF, 76-85"	*CF P. Circularis Sowerby*	1	Yes	Oblong pendant; Colonial to Classic period	No	No	No	No	No

WUPA 555	BRACELET	ROOM 81, SOUTH SIDE, 0-3'	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 948	TINKLER	ROOM 15, NEAR FLOOR, NEAR E WALL, NEAR OLLA	*Conus*	1	Unknown		No	No	No	No	No
WUPA 949	SHELL, WORKED	ROOM 10, LEVEL D	*Cardium*	1	No		No	No	No	No	No
WUPA 950	BRACELET	ROOM 10, LEVEL D	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 1061	SHELL, UNWORKED		Bivalve	1	No	Unworked with red paint	No	No	No	No	No
WUPA 1195	ORNAMENT		Unidentified marine bivalve	1	Yes	Perhaps zoomorphic	No	No	No	Yes	No
WUPA 1196	MOSAIC		*Laevicardium*	1	Unknown	Work marks shown on both sides	No	Yes	No	No	No
WUPA 1197	SHELL, WORKED		*Pecten*	1	Yes		No	Yes	No	No	No
WUPA 1199	SHELL		*Pecten*	1	Unknown	Rounded edges	No	Yes	No	No	No
WUPA 1208	PENDANT	ON HAND COLLECTION.	*Pecten*	1	Yes	Hohokam Classic period	No	No	No	No	No
WUPA 1215	BRACELET	ON HAND COLLECTION.	*Glycymeris*	1	Yes	Burnt	Yes	No	No	No	No
WUPA 1235	BRACELET FRAGMENT (SCORCHED)	NA 405	*Glycymeris*	1	Unknown		Yes	No	No	No	No
WUPA 1377	TINKLER	NA 405	*Conus*	1	Yes	Hohokam Sedentary period due to etching	No	No	No	Yes	No
WUPA 1378	TINKLER	NA 405	*Conus*	1	No		No	No	No	No	No
WUPA 1379	TINKLER	NA 405	*Conus*	1	Yes	Hohokam Sedentary	No	No	No	Yes	No

						period due to etching					
WUPA 1398	BEAD	NA 405 SOUTH END.	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1419	BEADS		*Olivella*	2	Yes	3 tubular beads, 23 disc beads	No	No	No	No	No
WUPA 1419	BEADS		*Spondylus*	22	Yes	3 tubular beads, 23 disc beads	No	No	No	No	No
WUPA 1419	BEADS		Unidentified marine bivalve	2	Yes	3 tubular beads, 23 disc beads	No	No	No	No	No
WUPA 1420	BEADS		*Glycymeris*	1	No		No	No	No	No	No
WUPA 1420	BEADS		*Olivella*	13	No		No	No	No	No	No
WUPA 1421	SHELL BEADS		*Olivella*	31	No		No	No	No	No	No
WUPA 1422	BEADS		*Olivella*	46	No		No	No	No	No	No
WUPA 1440	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1441	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1442	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1443	TINKLER FRAGMENT		*Conus*	1	Yes	Hohokam Sedentary period due to etching	No	No	No	Yes	No
WUPA 1444	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1445	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1446	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1447	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1448	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1449	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1450	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No

WUPA 1451	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1452	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1453	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1454	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1455	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1456	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1457	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1458	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1459	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1460	TINKLER FRAGMENT	UNKNOWN	*Conus*	1	Unknown		No	No	No	No	No
WUPA 1461	TINKLER FRAGMENT		*Conus*	1	Unknown		No	Yes	No	No	No
WUPA 1462	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1463	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1464	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1465	TINKLER		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1466	TINKLER		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1467	TINKLER		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1468	BEAD		*Cowry*	1	Unknown		No	No	No	No	No
WUPA 1469	BEAD		*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1470	BEAD		*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1471	BEAD		*Naticidae*	1	Unknown		No	No	No	No	No
WUPA 1472	SHELL		*Olivella*	1	Unknown		No	No	No	No	No

WUPA 1473	MOSAIC FRAGMENT/ BLANK		*Spondylus*	1	Unknown		No	No	No	No	No
WUPA 1474	SHELL		*Glycymeris*	1	No		No	No	No	No	No
WUPA 1475	ORNAMENT		Unidentified marine univalve	1	Yes		No	No	No	No	No
WUPA 1476	BEAD		*Spondylus/Chama*	1	Yes	Disc bead	No	No	No	No	No
WUPA 1477	RING		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1478	BEAD		*Glycymeris*	1	No		No	No	No	No	No
WUPA 1479	BEAD		*Glycymeris*	1	No		No	No	No	No	No
WUPA 1481	RING		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1482	BEAD		*Glycymeris*	1	No		No	No	No	No	No
WUPA 1483	PENDANT		*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 1484	BEAD		*Naticidae*	1	Unknown		No	No	No	No	No
WUPA 1486	BEAD		*Spondylus/Chama*	1	Yes	Disc bead	No	No	No	No	No
WUPA 1487	BEAD		*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 1488	BEAD		*Spondylus/Chama*	1	Yes	2 turquoise disc beads and 2 shell disc beads	No	No	No	No	No
WUPA 1489	BEAD		*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1490	BEAD		*Olivella*	1	Unknown	Tubular shaped	No	No	No	No	No
WUPA 1492	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet with etching	No	No	No	No	No
WUPA 1493	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet with	Yes	No	No	No	Yes

						etching; one side burnt					
WUPA 1494	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1495	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet with etching	No	No	No	No	Yes
WUPA 1496	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet with etching	No	No	No	No	Yes
WUPA 1497	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1498	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet with etching	No	No	No	No	Yes
WUPA 1499	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1500	BRACELET		*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet; one end sharpened to a point	No	No	No	No	Yes
WUPA 1501	BRACELET FRAGMENT	UNKNOWN	*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1502	BRACELET FRAGMENT	UNKNOWN	*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1503	BRACELET FRAGMENT	UNKNOWN	*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1504	BRACELET FRAGMENT	UNKNOWN	*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet; one end sharpened to a point	No	No	No	No	Yes

WUPA 1505	BRACELET FRAGMENT	UNKNOWN	*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet with etching	No	No	No	No	Yes
WUPA 1506	BRACELET FRAGMENT	UNKNOWN	*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet	No	No	No	No	No
WUPA 1546	PENDANT	TRASH SLOPE ON WEST SIDE OF NORTH RUIN BLOCK	*Spondylus/Chama*	1	Yes	Bilobed	No	No	No	No	No
WUPA 1547	BEAD	TRASH SLOPE ON WEST SIDE OF NORTH RUIN BLOCK	*Olivella*	1	Unknown	Tubular shaped	No	No	No	No	No
WUPA 1548	BEAD	TRASH SLOPE ON WEST SIDE OF NORTH RUIN BLOCK	*Turritella*	1	Unknown		No	No	No	No	No
WUPA 1549	TINKLER FRAGMENT	TRASH SLOPE ON WEST SIDE OF NORTH RUIN BLOCK	*Conus*	1	Unknown		No	No	No	No	No
WUPA 1560	BEAD	SURFACE	*Olivella*	1	Unknown	Tubular shaped	No	No	No	No	No
WUPA 1594	NEEDLE	TRASH SLOPE SURROUNDING RUIN	*Glycymeris*	1	Yes	Incised and drilled needle or pendant	No	No	No	Yes	Yes
WUPA 1595	PENDANT	TRASH SLOPE SURROUNDING RUIN	*Pecten*	1	Unknown		No	No	No	No	No
WUPA 1598	BEAD	TRASH SLOPE ON W SIDE OF	*Spondylus*	1	Yes	Bilobed	No	No	No	No	No

		NORTH RUIN BLOCK									
WUPA 1599	PENDANT	TRASH SLOPE ON W SIDE OF NORTH RUIN BLOCK	Unidentified marine bivalve	1	Unknown		No	No	No	No	No
WUPA 1601	BEAD	TRASH SLOPE ON W SIDE OF NORTH RUIN BLOCK	*Spondylus*	1	Yes	Thick disc bead	No	No	No	No	No
WUPA 1609	BEAD	TRASH SLOPE ON W SIDE OF NORTH RUIN BLOCK	*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 1610	BEAD	TRASH SLOPE ON W SIDE OF NORTH RUIN BLOCK	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1619	BEAD	TRASH SLOPE SURROUND ING RUIN	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1620	BEAD	TRASH SLOPE SURROUND ING RUIN	*Spondylus*	1	Yes	Bilobed	No	No	No	No	No
WUPA 1622	BRACELET	TRASH SLOPE ON W SIDE OF NORTH ROOM BLOCK	*Glycymeris*	1	Yes	Hohokam due to *Glycymeris* bracelet with etching	No	No	No	Yes	No
WUPA 1623	BEAD	TRASH SLOPE ON W SIDE OF	*Olivella*	1	Unknown		No	No	No	No	No

		NORTH ROOM BLOCK									
WUPA 1624	BEAD	TRASH SLOPE SURROUNDING RUIN	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1625	BEAD	TRASH SLOPE ON W SIDE OF SOUTH ROOM BLOCK	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1626	BEAD	TRASH SLOPE ON W SIDE OF SOUTH ROOM BLOCK	Unknown	1	Unknown	Disc bead	No	No	No	No	No
WUPA 1679	BEAD	S SIDE WALL/AMPHITHEATRE	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1680	BEAD	BALL COURT	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1715	TINKLER FRAGMENT		*Conus*	1	Unknown		No	No	No	No	No
WUPA 1778	BEAD		*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1779	BEAD	SW OF ROOM 82, IN RETAINING WALL	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1780	BEAD	TRASH AREA W SIDE OF ROOM BLOCK	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1797	BEAD	TRAIL STAKE # 5 - RAIN GUTTER	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 1804	PENDANTS		*Haliotis*	1	Unknown		No	No	No	No	No

WUPA 1806	BEAD		*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 1809	RING		*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 1811	PENDANT	SURFACE IN RUIN OFF FS ROAD 782 ?	*Spondylus*	1	Yes	Sunburst-Colonial or Sedentary period	No	No	No	No	No
WUPA 1845	NECKLACE		*Olivella*	76	Yes	76 total beads; 63 tubular beads and 13 whole beads	No	No	No	No	No
WUPA 1862	PENDANT	ON OLD HIGHWAY ROADBED/300 YDS BEHIND RUIN	*Pecten*	1	Yes	Sedentary or Classic period	No	No	No	No	No
WUPA 1880	BEADS	ROOM 10	*Olivella*	2	Unknown	Two *Olivella* beads	No	No	No	No	No
WUPA 1881	BEAD		Unknown	1	Yes	Bilobed	No	No	No	No	No
WUPA 1900	PENDANT		*Haliotis*	1	Yes	Maybe a lizard-Sedentary or Classic period	No	No	No	No	No
WUPA 1930	PENDANT	ACROSS WASH/BASE OF RIM	*Pecten*	1	Yes	Sunburst-Sedentary period	No	No	No	No	No
WUPA 1937	SHELL UNWORKED	AMPHITHEATRE WALL	*Pecten*	1	No		No	No	No	No	No
WUPA 3386	BEAD	SURFACE/ ON RUINS TRAIL	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 3392	BEAD	ROOM 41	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 3396	BEAD	ROOM 56-57/FILL IN WALL CAVITY	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5126	PENDANT	MISCELLANEOUS	*Glycymeris*	1	Yes	Bird effigy-Sedentary period	No	No	No	No	No

WUPA 5127	PENDANT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5128	PENDANT	MISCELLANEOUS	*Glycymeris*	1	Yes	Sunburst-Sedentary period	No	No	No	No	No
WUPA 5129	PENDANT	MISCELLANEOUS	*Pecten*	1	Unknown		No	No	No	No	No
WUPA 5130	PENDANT	MISCELLANEOUS	*Spondylus*	1	Yes	Oblong-Colonial, Sedentary, or Classic period	No	No	No	No	No
WUPA 5131	PENDANT	MISCELLANEOUS	*Spondylus*	1	Unknown		No	No	No	No	No
WUPA 5132	BEAD	MISCELLANEOUS	Unknown	1	Yes	Tubular shaped	No	No	No	No	No
WUPA 5133	SHELL WORKED	MISCELLANEOUS	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5134	BEAD	MISCELLANEOUS	Bivalve	1	Unknown		No	No	No	No	No
WUPA 5135	BEAD	MISCELLANEOUS	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 5136	BEADS SHELL AND STONE	MISCELLANEOUS	*Spondylus*	1	Yes	4 disc beads	No	No	No	No	No
WUPA 5136	BEADS SHELL AND STONE	MISCELLANEOUS	Unknown	2	Yes	4 disc beads	No	No	No	No	No
WUPA 5151	SHELL UNWORKED	MISCELLANEOUS	*Olivella*	1	No		No	No	No	No	No
WUPA 5152	SHELL UNWORKED	MISCELLANEOUS	*Olivella*	1	No		No	No	No	No	No
WUPA 5153	BEAD	MISCELLANEOUS	*Spondylus*	1	Unknown		No	No	No	No	No
WUPA 5154	BEADS	MISCELLANEOUS	*Spondylus*	1	Yes	29 disc beads	No	No	No	No	No
WUPA 5155	BEADS	MISCELLANEOUS	*Glycymeris*	1	Unknown	3 beads	No	No	No	No	No
WUPA 5156	BEAD	MISCELLANEOUS	*Naticidae*	1	Unknown		No	No	No	No	No
WUPA 5157	BEAD	MISCELLANEOUS	*Naticidae*	1	Unknown		No	No	No	No	No

WUPA 5158	BEAD	MISCELLANEOUS	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 5159	BEAD	MISCELLANEOUS	Unknown	1	Yes	Tubular shaped	No	No	No	No	No
WUPA 5160	BEAD	MISCELLANEOUS	Unknown	1	Yes	Tubular shaped	No	No	No	No	No
WUPA 5161	BEAD	MISCELLANEOUS	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5162	BEAD	MISCELLANEOUS	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5163	TINKLER FRAGMENT	MISCELLANEOUS	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5164	TINKLER FRAGMENT	MISCELLANEOUS	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5165	SHELL FRAGMENT	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 5166	SHELL FRAGMENT	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 5167	SHELL FRAGMENT	MISCELLANEOUS	*Haliotis*	1	No		No	No	No	No	No
WUPA 5168	SHELL FRAGMENT	MISCELLANEOUS	*Haliotis*	1	Unknown		No	No	No	No	No
WUPA 5169	BEAD	MISCELLANEOUS	*Dentalium*	1	Yes	Tubular shaped	No	No	No	No	No
WUPA 5170	SHELL FRAGMENT	MISCELLANEOUS	Bivalve	1	No		No	No	No	No	No
WUPA 5171	SHELL FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	No		No	No	No	No	No
WUPA 5172	SHELL FRAGMENT	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 5173	PENDANT FRAGMENT	MISCELLANEOUS	Unknown	1	Unknown		No	No	No	No	No
WUPA 5174	BEAD	MISCELLANEOUS	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 5175	BEAD	MISCELLANEOUS	*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 5178	BEAD	MISCELLANEOUS	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 5179	TINKLER FRAGMENT	MISCELLANEOUS	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5180	PENDANT	ROOM 10	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5181	TINKLER FRAGMENT	MISCELLANEOUS	*Conus*	1	Unknown		No	No	No	No	No

WUPA 5182	SHELL FRAGMENT UNWORKED	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 5183	TINKLER FRAGMENT	MISCELLANEOUS	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5184	SHELL UNWORKED	MISCELLANEOUS	Unknown	1	No	Univalve	No	No	No	No	No
WUPA 5185	BEAD	MISCELLANEOUS	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5186	SHELL FRAGMENT	MISCELLANEOUS	Bivalve	1	No		No	No	No	No	No
WUPA 5187	SHELL FRAGMENT	ROOM 7	*Pecten*	1	No		No	No	No	No	No
WUPA 5188	SHELL FRAGMENT	TRENCH C	*Pecten*	1	No		No	No	No	No	No
WUPA 5189	SHELL FRAGMENT	MISCELLANEOUS	Bivalve	1	No		No	No	No	No	No
WUPA 5190	SHELL FRAGMENT	MISCELLANEOUS	Unknown	1	No		No	No	No	No	No
WUPA 5191	SHELL FRAGMENT	MISCELLANEOUS	Bivalve	1	No		No	No	No	No	No
WUPA 5192	BEAD	TRENCH B	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5193	SHELL FRAGMENT UNWORKED	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 5194	SHELL FRAGMENT UNWORKED	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 5195	SHELL FRAGMENT UNWORKED	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 5196	BEAD	TRENCH C	*Olivella*	2	Unknown	2 *Olivella* beads	No	No	No	No	No
WUPA 5197	BEAD	TRENCH B	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 5198	BEAD	TRENCH B	*Olivella*	1	Unknown		No	No	No	No	No

WUPA 5199	BEAD	TRENCH B	*Nassarius*	1	Yes	Colonial, Sedentary, or Classic period	No	No	No	No	No
WUPA 5200	BEAD	TRENCH B	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5201	BEAD	ROOM 10	*Dentalium*	1	Yes	Tubular shaped	No	No	No	No	No
WUPA 5202	BEAD	ROOM 15	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5203	BEAD	TRENCH C	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5204	BEAD	TRENCH B	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5205	BEAD	MISCELLAN EOUS	*Polinices*	1	Unknown		No	No	No	No	No
WUPA 5206	SHELL UNWORKE D	TRENCH CC	Gastropod	1	No		No	No	No	No	No
WUPA 5207	BEADS	TRENCH C	*Olivella*	3	Unknown	3 Olivella beads	No	No	No	No	No
WUPA 5209	BEAD	TRENCH AA	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5210	BEAD	ROOM 12	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5211	BEAD	TRENCH B	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5212	SHELL UNWORKE D	ROOM 15	*Olivella*	1	No		No	No	No	No	No
WUPA 5213	BEAD	TRENCH AA	*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 5214	RING FRAGMENT	ROOM 12	*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 5215	BEAD	TRENCH B	*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 5216	BEAD	ROOM 15	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 5217	SHELL WORKED	MISCELLAN EOUS	*Pecten*	1	Unknown		No	No	No	No	No
WUPA 5218	BEAD	ROOM 12	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 5219	MOSAIC INLAY BLANK	ROOM 10	*Haliotis*	1	Yes	Mosaic inlay blank	No	No	No	No	No

WUPA 5220	PENDANT	TRENCH C	Unknown	1	Yes	Oblong-Colonial, Sedentary, or Classic period	No	No	No	No	No
WUPA 5221	PENDANT	TRENCH B	*Pecten*	1	Yes	Possibly phallic-incised	No	No	No	Yes	No
WUPA 5222	SHELL/WORKED	ROOM 12	*Haliotis*	1	No		No	No	No	No	No
WUPA 5223	PENDANT	TRENCH AA	*Pecten*	1	Yes	Colonial period	No	No	No	No	No
WUPA 5224	PENDANT	MISCELLANEOUS	Unknown	1	Yes	Tabular shaped	No	No	No	No	No
WUPA 5225	BEAD	MISCELLANEOUS	*Glycymeris*	2	Unknown	2 *Glycymeris* beads	No	No	No	No	No
WUPA 5226	SHELL UNWORKED FRAGMENT	MISCELLANEOUS	*Naticidae*	1	No		No	No	No	No	No
WUPA 5227	BEADS	MISCELLANEOUS	*Olivella*	10	Unknown	10 *Olivella* beads	No	No	No	No	No
WUPA 5228	BEADS	MISCELLANEOUS	*Olivella*	24	Unknown	24 *Olivella* beads	No	No	No	No	No
WUPA 5229	BEADS	MISCELLANEOUS	*Olivella*	4	Unknown	4 *Olivella* beads	No	No	No	No	No
WUPA 5230	BEADS	MISCELLANEOUS	*Spondylus*	5	Yes	5 *Spondylus* disc beads	No	No	No	No	No
WUPA 5231	BEAD	MISCELLANEOUS	*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 5232	BEADS	MISCELLANEOUS	Unknown	3	Yes	3 disc beads	No	No	No	No	No
WUPA 5233	BEAD	MISCELLANEOUS	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 5234	BEADS	MISCELLANEOUS	*Nassarius*	7	Unknown	7 *Nassarius* beads	No	No	No	No	No
WUPA 5235	SHELL FRAGMENT	MISCELLANEOUS	*Naticidae*	1	No		No	No	No	No	No
WUPA 5236	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5237	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5238	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes	Incised design	No	No	No	Yes	No
WUPA 5239	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No

WUPA 5240	RING FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5241	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5242	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	Yes
WUPA 5243	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes	Needle-Colonial or Sedentary period	No	No	No	No	No
WUPA 5244	RING FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5245	BRACELET FRAGMENT	TRENCH C	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5246	BRACELET FRAGMENT	TRENCH D	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5247	BRACELET FRAGMENT	ROOM 12	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5248	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5249	BRACELET FRAGMENT	TRENCH C	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5250	BRACELET FRAGMENT	ROOM 12	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5251	BRACELET FRAGMENT	ROOM 12	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5252	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5253	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5254	BRACELET FRAGMENT	TRENCH C	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5255	RING FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5256	BRACELET FRAGMENT	TRENCH CC	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 5257	BEAD	MISCELLANEOUS	*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 5258	BEAD	ROOM 10	*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 5275	TINKLER FRAGMENT	SURFACE	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5276	MOSAIC INLAY	SURFACE	*Pecten*	1	Yes	Mosaic inlay blank	No	No	No	No	No

	BLANK FRAGMENT										
WUPA 5277	TINKLER FRAGMENT	SURFACE	*Conus*	2	Unknown		No	No	No	No	No
WUPA 5278	TINKLER FRAGMENT	SURFACE	*Conus*	1	Unknown		No	No	No	No	No
WUPA 5279	SHELL/UNW ORKED	ROOM 12, LEVEL B	*Turritella*	1	No		No	No	No	No	No
WUPA 5330	BEADS/FRA GMENTS	SURFACE/ MISCELLAN EOUS	Unknown	1	Yes	2 disc beads; 1 stone and 1 unknown shell	No	No	No	No	No
WUPA 5330	BEADS/FRA GMENTS	SURFACE/ MISCELLAN EOUS	Unknown	2	Yes	2 disc beads; 1 stone and 1 unknown shell	No	No	No	No	No
WUPA 5364	BEADS/SHE LL	SURFACE	*Nassarius*	10	Yes	10 whole beads	No	No	No	No	No
WUPA 5368	SHELL ORNAMENT	MISCELLAN EOUS	Unknown	1	Unknown		No	No	No	No	No
WUPA 5371	SHELL	MISCELLAN EOUS	*Cardium*	1	No		No	No	No	No	No
WUPA 5409	PENDANT/S HELL/FRAG MENT	MISCELLAN EOUS	Unknown	1	No		No	No	Yes	No	No
WUPA 5535	BRACELET	ROOM 58, NORTH SIDE, LEVEL 4	*Glycymeris*	1	Yes	Incised	No	No	No	Yes	No
WUPA 5938	BEAD		Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 6003	RING FRAGMENT		*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8071	BEAD	SOUTHEAS T TALUS SLOPE	Unknown	2	Yes	1 disc and 1 tubular	No	No	No	No	No
WUPA 8072	BEAD	E OF RM 44	Unidentified marine shell	1	Yes	Disc bead	No	No	No	No	No
WUPA 8074	BEADS	NO INFORMATI ON	*Olivella*	9	Unknown	9 *Olivella* beads	No	No	No	No	No
WUPA 8075	BEAD	TRASH HEAP	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8081	PENDANT	RM 45B TRASH FILL	*Spondylus/C hama*	1	Yes	Double-lobed pendant	No	No	No	No	No

WUPA 8083	PENDANT FRAGMENT	RM 45B TRASH FILL	*Laevicardium*	1	Yes	Incised on back-Sedentary to Classic period	No	No	No	Yes	No
WUPA 8084	PENDANT FRAGMENT	TRENCH I	*Laevicardium*	1	Yes	Lizard pendant-Sedentary period	Yes	No	No	No	No
WUPA 8085	BRACELET FRAGMENT	RM 66B ABOVE FLOOR	*Glycymeris*	1	Yes	Drilled umbo-Colonial to Classic period	No	No	No	No	No
WUPA 8086	PENDANT FRAGMENT	TRASH FILL	*Turritella*	1	Yes	Colonial to Classic period	No	No	No	No	No
WUPA 8087	BRACELET FRAGMENT	RM 66B ENTRANCE	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8091	BEADS	RM 66B	*Olivella*	4	Unknown	4 *Olivella* beads	No	No	No	No	No
WUPA 8094	BEADS	TRASH FILL	*Olivella*	4	Unknown	4 *Olivella* beads	No	No	No	No	No
WUPA 8095	BEADS	RM 66B FLOOR	*Olivella*	2	Unknown	2 *Olivella* beads	No	No	No	No	No
WUPA 8096	BEADS	RM 62B	*Olivella*	2	Unknown	2 *Olivella* beads	No	No	No	No	No
WUPA 8097	BEADS	NO INFORMATION	*Olivella*	2	Unknown	2 *Olivella* beads	No	No	No	No	No
WUPA 8112	BEADS	NO INFORMATION	*Olivella*	13	Unknown	13 *Olivella* beads	No	No	No	No	No
WUPA 8113	BEAS	NO INFORMATION	*Olivella*	9	Unknown	9 *Olivella* beads	No	No	No	No	No
WUPA 8114	BEAD	RM 66B FLOOR	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 8115	BEAD	RM 59	*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 8116	BEAD	RM 62B	Unknown	2	Yes	2 bilobed beads	No	No	No	No	No
WUPA 8117	BEAD	NO INFORMATION	*Nassarius*	1	Unknown		No	No	No	No	No
WUPA 8119	BEAD	TRASH HEAP	Unknown	1	Yes	Disc bead	No	No	No	No	No
WUPA 8120	BEADS	RM 66B FLOOR	*Spondylus*	2	Yes	2 disc beads	No	No	No	No	No

WUPA 8121	BEAD	RM 66B ABOVE FLOOR	*Spondylus*	1	Yes	Disc bead	No	No	No	No	No
WUPA 8123	BEAD	RM 66A ABOVE FLOOR	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8125	BEAD	NO INFORMATI ON	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8126	BEAD	NO INFORMATI ON	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8127	BEAD	RM 55B TRASH FILL	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8128	BEAD	RM 59	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8129	BEAD	RM 66A ABOVE FLOOR	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8130	SHELL	TRENCH S4 TALUS SOUTH OF RM 68	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8131	BEAD	TRENCH I	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8141	BEADS	NO INFORMATI ON	*Olivella*	13	Unknown	13 *Olivella* beads	No	No	No	No	No
WUPA 8142	WHOLE SHELL	RM 51B ABOVE FLOOR	*Glycymeris*	1	No		No	No	No	No	No
WUPA 8143	BEADS	NEAR ROOM 35 AND 36	*Olivella*	3	Unknown	3 *Olivella* beads	No	No	No	No	No
WUPA 8149	BEAD	RM 28A	*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 8150	BEADS	NO INFORMATI ON	*Olivella*	2	Unknown	2 *Olivella* beads	No	No	No	No	No
WUPA 8151	BEAD	RM 66B ON OR JUST ABOVE(?)	*Glycymeris*	1	Unknown		No	No	No	No	No

WUPA 8164	BEADS	RM 57B ABOVE FLOOR	*Olivella*	2	Unknown	2 *Olivella* beads	No	No	No	No	No
WUPA 8165	BEADS	NO INFORMATI ON	*Olivella*	80	Yes	75 tubular beads and 5 whole beads	No	No	No	No	No
WUPA 8169	BEAD	NO INFORMATI ON	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8170	BEAD	SURFACE	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8187	BEADS	NO INFORMATI ON	*Nassarius*	41	Yes	41 beads- Possibly an anklet- Classic period	No	No	No	No	No
WUPA 8188	BEADS	NO INFORMATI ON	*Glycymeris*	3	Unknown	3 *Glycymeris* beads	No	No	No	No	No
WUPA 8189	BEADS	NO INFORMATI ON	Unknown	1	Yes	2 disc beads	No	No	No	No	No
WUPA 8190	BEAD	RM 51A FLOOR	*Glycymeris*	1	Yes	Disc bead	No	No	No	No	No
WUPA 8191	BEAD	NO INFORMATI ON	*Olivella*	1	Yes	Tubular shaped	No	No	No	No	No
WUPA 8192	BEAD	RM 59	Crinoid fossil	1	Yes	Disc bead	No	No	No	No	No
WUPA 8208	BEAD	NO INFORMATI ON	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8209	BEAD	NO INFORMATI ON	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8220	BEAD	NO INFORMATI ON	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8221	BEAD	MISCELLAN EOUS	*Olivella*	1	Unknown		No	No	No	No	No
WUPA 8224	BEAD	NO INFORMATI ON	Unknown	1	Yes	Bilobed bead	No	No	No	No	No

WUPA 8226	BEADS		*Dentalium*	1	Yes	3 *Olivella* beads, 8 *Spondylus* disc beads, 4 bilobed beads, 1 tabular bead, 9 *Glycymeris* beads, and 1 *Dentalium* bead	No	No	No	No	No
WUPA 8226	BEADS		*Glycymeris*	9	Yes	3 *Olivella* beads, 8 *Spondylus* disc beads, 4 bilobed beads, 1 tabular bead, 9 *Glycymeris* beads, and 1 *Dentalium* bead	No	No	No	No	No
WUPA 8226	BEADS		*Olivella*	3	Yes	3 *Olivella* beads, 8 *Spondylus* disc beads, 4 bilobed beads, 1 tabular bead, 9 *Glycymeris* beads, and 1 *Dentalium* bead	No	No	No	No	No
WUPA 8226	BEADS		*Spondylus*	13	Yes	3 *Olivella* beads, 8 *Spondylus* disc beads, 4 bilobed beads, 1 tabular bead, 9 *Glycymeris* beads, and 1 *Dentalium* bead	No	No	No	No	No
WUPA 8246	WORKED SHELL	TRENCH H	*Laevicardium*	1	No		No	No	No	No	No
WUPA 8247	PENDANT	RM 3	*Glycymeris*	1	Yes	Perforated disc pendant	No	No	No	No	No
WUPA 8248	WORKED SHELL	KITCHEN MIDDEN	*Glycymeris*	1	Yes	Frog effigy- Classic period	No	No	No	No	No
WUPA 8249	BEAD		*Olivella*	1	Unknown		No	No	No	No	No

WUPA 8250	BRACELET FRAGMENT	RM 59	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8251	BRACELET FRAGMENT	RM 59	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8252	BRACELET FRAGMENT	NO INFORMATI ON	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8253	BRACELET FRAGMENT	RM 62B	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8254	WORKED SHELL	UPPER TALUS	*Laevicardiu m*	1	Yes	Disc- Colonial to Classic period	No	No	No	No	No
WUPA 8266	BRACELET FRAGMENT S	RM 68	*Glycymeris*	4	Yes	4 *Glycymeris* bracelet fragments	No	No	No	No	No
WUPA 8267	BRACELET FRAGMENT	NO INFORMATI ON	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8274	WORKED SHELL	RM 3	*Olivella*	1	Yes	Incised-Sedentary or Classic period	No	No	No	Yes	No
WUPA 8292	TINKLER FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8293	TINKLER FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8294	TINKLER FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8295	TINKLER FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8296	UNWORKE D	RM 66B ON OR JUST ABOVE	*Haliotis*	3	No	1 *Pecten* pendant fragment, 3 *Haliotis* unworked fragments, and 1 unknown shell	No	No	No	No	No
WUPA 8296	PENDANT	RM 66B ON OR JUST ABOVE	*Pecten*	1	No	1 *Pecten* pendant fragment, 3 *Haliotis* unworked	No	No	No	No	No

						fragments, and 1 unknown shell					
WUPA 8296	UNWORKED	RM 66B ON OR JUST ABOVE	Unknown	1	No	1 *Pecten* pendant fragment, 3 *Haliotis* unworked fragments, and 1 unknown shell	No	No	No	No	No
WUPA 8297	UNWORKED	MISCELLANEOUS	*Pecten*	1	No		No	No	No	No	No
WUPA 8298	BRACELET FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes	1 *Pecten* fragment, 1 *Glycymeris* ring fragment, 1 *Glycymeris* bracelet fragment, 10 *Haliotis* fragments, and 1 unknown fragment	No	No	No	No	No
WUPA 8298	RING FRAGMENT	MISCELLANEOUS	*Glycymeris*	1	Yes	1 *Pecten* fragment, 1 *Glycymeris* ring fragment, 1 *Glycymeris* bracelet fragment, 10 *Haliotis* fragments, and 1 unknown fragment	No	No	No	No	No
WUPA 8298	UNWORKED	MISCELLANEOUS	*Haliotis*	10	No	1 *Pecten* fragment, 1 *Glycymeris* ring fragment, 1 *Glycymeris* bracelet fragment, 10 *Haliotis* fragments, and	No	No	No	No	No

						1 unknown fragment					
WUPA 8298	UNWORKED	MISCELLANEOUS	*Pecten*	1	No	1 *Pecten* fragment, 1 *Glycymeris* ring fragment, 1 *Glycymeris* bracelet fragment, 10 *Haliotis* fragments, and 1 unknown fragment	No	No	No	No	No
WUPA 8298	UNWORKED	MISCELLANEOUS	Unknown	1	No	1 *Pecten* fragment, 1 *Glycymeris* ring fragment, 1 *Glycymeris* bracelet fragment, 10 *Haliotis* fragments, and 1 unknown fragment	No	No	No	No	No
WUPA 8299	PENDANT	MISCELLANEOUS	*Glycymeris*	1	Yes	Incised needle pendant-Colonial to Classic period	No	No	No	Yes	Yes
WUPA 8300	RING FRAGMENT	MISCELLANEOUS	*Glycymeris*	3	Yes	3 *Glycymeris* ring fragments and 1 unknown pendant fragment	No	No	No	Yes	No
WUPA 8300	PENDANT	MISCELLANEOUS	Unknown	1	Yes	3 Glycymeris ring fragments and 1 unknown pendant fragment	No	No	No	Yes	No
WUPA 8301	TINKLER	RM 66B	*Conus*	1	No	1 *Conus* tinkler fragment, 1 *Pecten*	No	No	No	No	No

						unworked fragment, and 1 unknown fragment					
WUPA 8301	UNWORKE D	RM 66B	*Pecten*	1	No	1 *Conus* tinkler fragment, 1 *Pecten* unworked fragment, and 1 unknown fragment	No	No	No	No	No
WUPA 8301	UNWORKE D	RM 66B	Unknown	1	No	1 *Conus* tinkler fragment, 1 *Pecten* unworked fragment, and 1 unknown fragment	No	No	No	No	No
WUPA 8302	UNWORKE D	RM 66B	*Haliotis*	3	No		No	No	No	No	No
WUPA 8303	UNWORKE D	NO INFORMATI ON	*Haliotis*	1	No		No	No	No	No	No
WUPA 8304	UNWORKE D	NO INFORMATI ON	*Haliotis*	3	No		No	No	No	No	No
WUPA 8305	BRACELET FRAGMENT	NO INFORMATI ON	*Haliotis*	1	Unknown		No	No	No	No	No
WUPA 8306	TINKLER	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8307	TINKLER FRAGMENT S	RM 55B TRASH FILL	*Conus*	1	Unknown	1 whole tinkler and 3 tinkler fragments	No	No	No	No	No
WUPA 8307	TINKLER FRAGMENT S	RM 55B TRASH FILL	*Conus*	3	Unknown	1 whole tinkler and 3 tinkler fragments	No	No	No	No	No
WUPA 8308	TINKLER	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8309	TINKLER-FRAGMENT	RM 35	*Conus*	1	Unknown		No	No	No	No	No

WUPA 8310	TINKLER	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8311	TINKLER	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8312	TINKLER-FRAGMENT	BETWEEN RM 66A AND 66B	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8313	TINKLER-FRAGMENT	BETWEEN RM 66A AND 66B	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8314	TINKLER-FRAGMENT	RM 66B ON OR JUST ABOVE?	*Conus*	6	Unknown		No	No	No	No	No
WUPA 8316	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown	6 *Conus* tinkler fragments	No	No	No	No	No
WUPA 8317	TINKLER-FRAGMENT	RM 66B FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8318	TINKLER	RM 66B ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8319	TINKLER-FRAGMENT	RM 66B ON OR JUST ABOVE(?)	*Conus*	3	Unknown	3 *Conus* tinkler fragments	No	No	No	No	No
WUPA 8320	TINKLER-FRAGMENT	RM 66B ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8321	TINKLER-FRAGMENT	RM 66B FLOOR	*Conus*	5	Yes	5 *Conus* tinkler fragments and 1 Glycymeris ring fragment	No	No	No	No	No
WUPA 8321	RING FRAGMENT	RM 66B FLOOR	*Glycymeris*	1	Yes	5 *Conus* tinkler fragments and 1 *Glycymeris* ring fragment	No	No	No	No	No
WUPA 8322	TINKLER-FRAGMENT	TRENCH I	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8323	TINKLER-FRAGMENT	TRENCH I	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8324	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No

WUPA 8325	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8326	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8327	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8328	TINKLER	SEC 4 KITCHEN MIDDEN	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8329	TINKLER	SEC 4 KITCHEN MIDDEN	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8330	TINKLER-FRAGMENT	SEC 4 KITCHEN MIDDEN	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8331	TINKLER-FRAGMENT	SEC 4 W OF RM36	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8332	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8333	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8334	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8335	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8336	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8337	TINKLER-FRAGMENT	NO INFORMATI ON	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8338	TINKLER-FRAGMENT	RM 30	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8339	TINKLER-FRAGMENT	RM 30	*Conus*	1	Unknown		No	No	No	No	No

WUPA 8340	TINKLER-FRAGMENT	NO INFORMATION	*Conus*	2	Unknown		No	No	No	No	No
WUPA 8341	TINKLER-FRAGMENT	RM 35C MIDDEN FILL	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8342	TINKLER-FRAGMENT	RM 35C MIDDEN FILL	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8343	TINKLER-FRAGMENT	RM 35C MIDDEN FILL	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8344	TINKLER-FRAGMENT	RM 35C	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8345	TINKLER-FRAGMENT	RM 38A ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8346	TINKLER	ROOM 7	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8347	TINKLER-FRAGMENT	RM 66A ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8348	TINKLER-FRAGMENT	RM 51A FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8349	TINKLER-FRAGMENT	RM 51B ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8350	TINKLER-FRAGMENT	RM 51B ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8351	TINKLER-FRAGMENT	RM 59	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8352	TINKLER-FRAGMENT	RM 59	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8353	TINKLER-FRAGMENT	RM 63	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8359	TINKLER-FRAGMENT	RM 66A ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8360	TINKLER-FRAGMENT	RM 66A ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No

WUPA 8361	TINKLER-FRAGMENT	RM 66A ABOVE FLOOR	*Conus*	1	Unknown		No	No	No	No	No
WUPA 8410	UNWORKED	NO INFORMATION	*Olivella*	11	No		No	No	No	No	No
WUPA 8411	PENDANT	NO INFORMATION	*Laevicardium*	2	Yes	2 unknown pendants-possibly lizards?	No	No	No	No	No
WUPA 8412	PENDANT	TRASH HEAP	*Glycymeris*	1	Yes	Incised-Colonial to Classic period	No	No	No	Yes	No
WUPA 8507	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8510	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8513	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8517	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8520	BRACELET-FRAGMENT	UPPER TALUS	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8523	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	2	Yes	2 *Glycymeris* bracelet fragments	No	No	No	No	No
WUPA 8524	BRACELET-FRAGMENT	RM 30	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8525	BRACELET-FRAGMENT	RM 35A	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8526	BRACELET-FRAGMENT	RM 35C MIDDEN FILL	*Glycymeris*	1	Yes	Incised with diagnol lines	No	No	No	Yes	No
WUPA 8527	BRACELET-FRAGMENT	RM 35C MIDDEN FILL	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8530	BRACELET-FRAGMENT	RM 7	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8531	BRACELET-FRAGMENT	RM 7	*Glycymeris*	1	Yes	Incised	No	No	No	Yes	No

WUPA 8532	BRACELET-FRAGMENT	RM 7B	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8533	BRACELET-FRAGMENT	RM 7A	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8534	BRACELET-FRAGMENT	RM 7	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8535	BRACELET-FRAGMENT	TRENCH H	*Glycymeris*	1	Yes		No	No	No	Yes	No
WUPA 8536	BRACELET-FRAGMENT	RM 45B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8537	BRACELET-FRAGMENT	RM 45B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8538	BRACELET-FRAGMENT	RM 45B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8539	BRACELET-FRAGMENT	RM 45B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8540	BRACELET-FRAGMENT	RM 45B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8543	BRACELET-FRAGMENT	RM 62B	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8546	BRACELET-FRAGMENT	RM 7	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8547	BRACELET-FRAGMENT	RM 7	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8548	BRACELET-FRAGMENT	RM 28A	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8549	BRACELET-FRAGMENT	RM 28A	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8550	BRACELET-FRAGMENT	RM 28A	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8551	BRACELET-FRAGMENT	TRENCH I	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8552	BRACELET-FRAGMENT	TRENCH I	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8553	BRACELET-FRAGMENT	TRENCH I	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8554	BRACELET-FRAGMENT	TRENCH I	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8555	BRACELET-FRAGMENT	TRENCH I	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8556	BRACELET-FRAGMENT	TRENCH I	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8557	BRACELET-FRAGMENT		*Glycymeris*	1	Yes		No	No	No	No	No

WUPA 8558	BRACELET-FRAGMENT	TRENCH I	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8559	BRACELET-FRAGMENT		*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8560	BRACELET-FRAGMENT		*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8561	BRACELET-FRAGMENT		*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8562	BRACELET-FRAGMENT		*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8563	BRACELET-FRAGMENT	RM 66A ABOVE FLOOR	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8564	BRACELET-FRAGMENT	RM 63	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8565	BRACELET-FRAGMENT	RM 63	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8566	BRACELET-FRAGMENT	TEST HOLE IN TRENCH 10	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8567	BRACELET	NO INFORMATI ON	*Glycymeris*	1	Yes	Possibly a carved frog, drilled at one end- Colonial to Classic period	No	No	No	No	No	
WUPA 8568	BRACELET-FRAGMENT	RM 55B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8569	WORKED SHELL-FRAGMENT	RM 55B TRASH FILL	*Glycymeris*	1	Yes	Worked *Glycymeris* bracelet fragment	No	No	No	No	Yes	
WUPA 8570	BRACELET-FRAGMENT	RM 55B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8571	BRACELET-FRAGMENT	RM 55B TRASH FILL	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8572	BRACELET-FRAGMENT	NO INFORMATI ON	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8573	BRACELET-FRAGMENT	NO INFORMATI ON	*Glycymeris*	1	Yes		No	No	No	No	No	
WUPA 8574	BRACELET-FRAGMENT	NO INFORMATI ON	*Glycymeris*	1	Yes		No	No	No	No	No	

WUPA 8575	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8576	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8577	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8588	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes	Burnt	Yes	No	No	No	No
WUPA 8592	BRACELET-FRAGMENTS	RM 45B TRASH FILL	*Glycymeris*	2	Yes	2 fragments	No	No	No	No	No
WUPA 8593	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8594	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8605	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8606	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8607	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8608	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8609	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8610	BRACELET-FRAGMENT	NO INFORMATION	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8611	BRACELET-FRAGMENT		*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8612	BRACELET-FRAGMENT	W TALUS SLOPE SURFACE	*Glycymeris*	1	Yes		No	No	No	No	No

WUPA 8613	BRACELET-FRAGMENT	W TALUS SLOPE	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8614	BRACELET-FRAGMENT	RUIN 43	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8615	BRACELET-FRAGMENT	RUIN 43	*Glycymeris*	2	Yes	2 fragments	No	No	No	No	No
WUPA 8616	BRACELET-FRAGMENT	MIDDEN	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8680	BRACLET-FRAGMENT	NO INFORMATI ON	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8681	BRACELET-FRAGMENT	TRENCH J	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8682	BRACELET-FRAGMENT	TRENCH J	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8683	BRACELET-FRAGMENT	TRENCH J	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8684	BRACELET-FRAGMENT	TRENCH J	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8685	BRACELET-FRAGMENT	TRENCH J	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8686	BRACELET-FRAGMENT	NO INFORMATI ON	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 8687	BRACELET-FRAGMENT	BALL COURT EAST WALL FILL	*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 9414	BEAD	TRENCH H	*Spondylus*	1	Yes	1 *Spondylus* disc bead and 1 stone bead	No	No	No	No	No
WUPA 9427	DISC	UPPER TALUS	*Laevicardiu m*	1	Yes	Disc	No	No	No	No	No
WUPA 9528	FIGURINE	RM 51B FOUND ABOVE FLOOR	*Glycymeris*	1	Yes	Colonial to Classic period	No	No	No	No	No
WUPA 9531	BEADS	NO INFORMATI ON	Unknown	34	Yes	34 disc beads	No	No	No	No	No
WUPA 10694	SHELL-FRAGMENT	MIDDEN	*Glycymeris*	1	No		No	No	No	No	No
WUPA 10695	PENDANT	R56A	*Turritella*	1	Yes	Pioneer to Classic period	No	No	No	No	No

WUPA 10696	shell	SURFACE WEST OF ROOM 67	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10697	shell	UPPER TALUS	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10698	shell		*Cardium*	1	No		No	No	No	No	No
WUPA 10707	shell		*Laevicardium*	1	No		No	No	No	No	No
WUPA 10709	TINKLER	R66A	*Conus*	1	Unknown		No	No	No	No	No
WUPA 10710	shell	R66B, ABOVE FLOOR	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10711	shell		*Pecten*	1	No		No	No	No	No	No
WUPA 10720	shell	R66	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10724	shell		*Oreohelix*	1	No		No	No	No	No	No
WUPA 10725	shell	R63	Unknown	1	No		No	No	No	No	No
WUPA 10727	shell	R35	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10728	shell	R44A	*Haliotis*	1	No		No	No	No	No	No
WUPA 10729	PENDANT	R45B	*Turritella*	2	Yes	2 fragments	No	No	No	No	No
WUPA 10731	BRACELET FRAGMENT	FROM TEST TRENCH BETWEEN B AND C FLOORS.	*Glycymeris*	2	Yes	2 *Glycymeris* bracelet fragment and 1 unworked shell fragment	No	No	No	No	No
WUPA 10731	UNWORKED	FROM TEST TRENCH BETWEEN B AND C FLOORS.	*Glycymeris*	1	Yes	2 *Glycymeris* bracelet fragment and 1 unworked shell fragment	No	No	No	No	No
WUPA 10732	BRACELET-FRAGMENT		*Haliotis*	1	Yes		No	No	No	No	No
WUPA 10733	UNWORKED		*Haliotis*	1	No		No	No	No	No	No
WUPA 10734	UNWORKED	MIDDEN	Bivalve	1	No	Fossilized	No	No	No	No	No

WUPA 10735	UNWORKED		*Haliotis*	3	No	3 fragments	No	No	No	No	No
WUPA 10736	UNWORKED	NEAR ROOM 35 AND 36	*Pecten*	1	No		No	No	No	No	No
WUPA 10737	UNWORKED		*Laevicardium*	1	No		No	No	No	No	No
WUPA 10738	UNWORKED		*Laevicardium*	1	No		No	No	No	No	No
WUPA 10739	UNWORKED		*Laevicardium*	1	No		No	No	No	No	No
WUPA 10740	UNWORKED	MIDDEN	*Pecten*	1	No		No	No	No	No	No
WUPA 10741	UNWORKED		*Laevicardium*	1	No		No	No	No	No	No
WUPA 10742	UNWORKED	MIDDEN	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10743	Worked shell		*Strombus*	1	Unknown		No	No	No	No	No
WUPA 10744	UNWORKED		*Naticidae*	1	No		No	No	No	No	No
WUPA 10745	UNWORKED	ROOM 45B	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10746	UNWORKED		*Cardium elatum*	1	No		No	No	No	No	No
WUPA 10747	UNWORKED	R63	Unknown	1	No		No	No	No	No	No
WUPA 10748	UNWORKED	R63	Bivalve	1	No		No	No	No	No	No
WUPA 10749	BEAD		Crinoid fossil	1	Yes	Disc bead	No	No	No	No	No
WUPA 10750	worked shell	MIDDEN	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10751	worked shell	R63	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10752	worked shell	ROOM 7	*Cardium*	1	Unknown		No	No	No	No	No
WUPA 10753	UNWORKED		Bivalve	1	No		No	No	No	No	No
WUPA 10754	UNWORKED	R68	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10755	UNWORKED	Not Provided	*Pecten*	1	No		No	No	No	No	No

WUPA 10756	UNWORKED		Bivalve	1	No		No	No	No	No	No
WUPA 10757	BEAD		*Turritella*	1	Yes		No	No	No	No	No
WUPA 10758	BEAD		*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 10759	UNWORKED		*Laevicardium*	1	No		No	No	No	No	No
WUPA 10760	UNWORKED	R63A	*Pecten*	1	No		No	No	No	No	No
WUPA 10761	UNWORKED	R45B	*Laevicardium*	1	No		No	No	No	No	No
WUPA 10762	UNWORKED		*Glycymeris*	1	No		No	No	No	No	No
WUPA 10763	UNWORKED	IN CRACK BENEATH FLOOR OF ROOM 34B	*Haliotis Sufescens Swanson*	1	No		No	No	No	No	No
WUPA 10764	UNWORKED	R55B	*Pecten*	1	No		No	No	No	No	No
WUPA 10765	UNWORKED		*Pecten*	1	No		No	No	No	No	No
WUPA 10766	TRUMPET	R63	*Murex*	1	Unknown		No	No	No	No	No
WUPA 10767	PENDANT-FRAGMENT		*Pecten vogdesi*	1	Yes	Classic period	No	No	No	No	No
WUPA 16806	RING	WEST OF OUTLINING WALL BETWEEN I AND J	*Glycymeris*	1	Yes	Pioneer to Classic period	No	No	Yes	No	No
WUPA 16807	WORKED SHELL	ROOM 66B BETWEEN 66A AND 66B	*Pecten*	1	Yes	Flying bird (Sedentary to Classic period)	No	No	No	No	No
WUPA 16808	WORKED SHELL	TRENCH 1	Unknown	1	Yes	Snake (Colonial period)	No	No	No	No	No
WUPA 16861	UNWORKED	UNKNOWN	*Laevicardium*	1	No		No	No	No	No	No
WUPA 16862	UNWORKED	UNKNOWN	*Haliotis*	1	No		No	No	No	No	No
WUPA 16863	WORKED SHELL	UNKNOWN	Unknown	1	Yes	Flying bird (Sedentary to Classic period)	No	No	No	No	No

						or lizard (Classic period)					
WUPA 16864	UNWORKED	UNKNOWN	*Cardium*	1	No		No	No	No	No	No
WUPA 16865	UNWORKED	UNKNOWN	*Cardium*	1	No		No	No	No	No	No
WUPA 16866	ORNAMENT	UNKNOWN	*Pecten*	1	Yes	Classic period	No	No	No	No	No
WUPA 27494	BEAD		*Glycymeris*	1	Unknown		No	No	No	No	No
WUPA 27495	BEADS	R51A	*Glycymeris*	3	Unknown	3 whole beads	No	No	No	No	No
WUPA 27935	ORNAMENT	FOUND IN NORTH UNIT BEHIND TRAIL SIGN 8.	*Mollusk*	1	Unknown		No	No	No	No	No
WUPA 27939	TINKLER	280M AND 270 DEGREES FROM SOUTHWEST CORNER OF ROOM 51.	*Conus*	1	Unknown		No	No	No	No	No
WUPA 28032	BRACELET	ROOM 35	*Glycymeris*	1	Yes	Incised	No	No	No	Yes	No
WUPA 28280	PENDANT		*Glycymeris*	1	Yes		No	No	No	No	No
WUPA 28288	TINKLER-FRAGMENT	RM 35 FILL	*Conus*	1	Unknown	Burnt	No	No	No	No	Yes
WUPA 28291	UNWORKED	FOUND NEAR CAVATE 64	*Pecten*	1	No		No	No	No	No	No
WUPA 28819	TINKLER	ROOM 51B	*Conus*	1	Unknown		No	No	No	No	No
WUPA 28820	TINKLER	ROOM 45B	*Conus*	1	Unknown		No	No	No	No	No
WUPA 28828	TINKLER	ROOM 51A	*Conus*	1	Unknown		No	No	No	No	No
WUPA 28834	TINKLER	ROOM 7A	*Conus*	1	Unknown		No	No	No	No	No

WUPA 28835	TINKLER	ROOM 7A	*Conus*	1	Unknown		No	No	No	No	No
WUPA 01382	Necklace		*Spondylus*	200	Yes	Over 200 disc beads	No	No	No	No	No
WUPA 08201	BEAD	ROOM 7	*Glycymeris*	85	Unknown	85 *Glycymeris* whole shell beads	No	No	No	No	No
WUPA 25453	Pendant		*Haliotis*	1	Yes	Haliotis flying bird pendant-Sedentary to Classic period	No	No	No	No	No
WUPA 25468	Necklace	ROOM 15/16 and MIDDEN	*Conus*	1	Yes		No	No	No	No	No
WUPA 25468	Necklace	ROOM 15/16 and MIDDEN	*Olivella*	50	Yes	*Olivella* tubular beads	No	No	No	No	No

APPENDIX B
FULL SHELL DATABASE OF ELDEN PUEBLO AND SHELL SPREADSHEET CODES FROM COCONINO NATIONAL FOREST

FEAT	CON-TXT	CAT. NO	COM-PLT	GENUS	SPE-CIES	CLASS	TYPE	SH-APE	PE-RF	COND-ITION	WEAR /POL-ISH	RE	COMMENT
R19	FILL	R19.6	F	AB	SP	UNK	U	I	N	NA	N	N	FILL ABOVE FLOOR
		S11W01.22	F	AB		P		I	D		N	N	
		S09W20.11	F	AB		UNK		R	N	E	N	N	
		S11W01.21	F 3 ea.	AB		UNK		I	N	NAC	N	N	3 Small pieces
E. WALL FALL		R33.17	F	AB		UNK		R	N	E	N	N	
	WS	R14.12	C	AB		P		T	C	NAC	N	N	
K 1	FILL	K1.39	F's	ANODANTA		UNK	UNK	R	N	NAC	N	N	LARGEST OF 3 PIECES
		N18W08.14	F	ANODANTA		UNK	UNK	I	N	C	N	N	
K 1	FILL	K1.53	F's	ANODANTA		UNK	UNK	*	N	C	N	N	SHATTERED INTO SEVERAL PIECES
K 1	FILL	K1.50	F	ANODANTA		UNK	UNK	I	N	C	N	N	
K 1*	FILL	S09W01.44	I	ANODANTA		B	D	C	C	NAC	N	N	
K 1	FILL	K1.37	F	ANODANTA		UNK	UNK	SQ	N	NAC	N	N	
		N18W10.1	F's	ANODANTA		UNK	UNK	I	N	C	N	N	SHATTERED INTO SEVERAL PIECES
		N18W06.12	F's	ANODANTA		UNK	UNK	I	N	C	N	N	SHATTERED INTO NUMEROUS PIECES
K 1*	FILL	S09W01.33	F	ANODANTA		UNK	UNK	SR	N	NAC	N	N	
		S11E11.10	F's	ANODANTA		UNK	UNK	I	N	C	N	N	LARGEST OF 2 PIECES
		S11W01.2	F	Anodonta		UNK	U	F	N	E	U	N	
		(FS 136)	F	BV		UNK		I	N	SS	N	N	

<>	<>	Sq.N20E15.27	C	C	1.6	T	CL	C	G	UM	A	N	
		S11E14.28	C	C		T	W		C		P	N	
		S13E02.19	C	C		T	INC	F	N	C	N	N	
TR4		R11.37	I	C		T		C	C	SS	N	N	
		S13E03.18	C	C		T	W		C	N	B	N	
		S13E14.3	I	C		T	W		C	C	N	N	
		N10W11.2	F	C		T	W		U	C	S	N	
		N17W11.9	I	C		T	W		U	C	N	N	
		N25W10.2	C	C	Regularis	T	W		N	B		N	NO HOLE TINKLER??
		N25W10.4	F	C		T	W		C	C	U	N	
		S11E06.17	I	C		T	W		C	C	S	N	
		N20E15.5	C	C		T	W	N	C	E	N	N	
		N20E15.7	C	C		T	W	N	C	E	N	N	
R40		R40.3	I	C		T	W		U		U	U	ON LOAN
PIT 8	FILL	N08W03.8	I	C	<>	T	W	<>	C	C	N	N	2 pieces. Uniconically drilled hole
		N10W10.5	F	C		T	W		CC	N	N	Y	2ND PERFORATION
		N10W12.5	F	C		T	W		U	C	N	N	
		N17W01.3	F	C		T	W	N	N	C	N	N	
		N17W01.4	F	C		T	W	N	N	C	N	N	
		N18W05.4	F	C		T	W		U	N	N	N	
		N26W11.2	F	C		T	W		C	B	S	N	
		S11W09.12	I	C		U	U	I	N	C	N	N	
		S11E16.14	C	C		T	W		C		U	N	
		N20E16.10	I	C		T		C	D	C	N	N	FILLED WITH DIRT
		S09W04.11	C	C		T (?)	W		N	C	S	N	PERF. COULD BE BROKEN OUT
		S11E04.21	F	C		T		C	N	SS	N	N	
K 1	FILL	K1.103	F	C		T		C	D	C	N	N	

K 1	FILL	K1.43	I	C		T	W		C		S	N	
PH13		PH13.3	C	C		T	W		C	N	B	N	NO CAT. CARD
K 1	FILL	K1.48	F	C		UNK	U	I	N	N	N	N	
		N18W07.17	F	C		T	W		I	N	S	N	
		N18W10.10	F	C		UNK	U	T	U	C	N	N	
		N20E17.9	C	C		T	W	N	C	E	N	N	
		N27W10.2	F	C		T			U	C	S	N	
PH15	FILL	PH15.3	F	C		T	W		C	C	S	N	
		N20E15.6	C	C		T	W	N	I	E	N	N	
		N20E15.8	C	C		T	W	N	I	E	N	N	
		S09W02.4	I	C		T	W		C	C	N	N	
		S09W04.16	I	C		T	W		C	N	B	N	
		S09W20.1	I	C		T		C	C	SS	N	N	
		S13W01.13	F	C		T	W		U	C	S	N	
		(FS 44)	C	C		T		C	C	C	N	N	
		N12E04.1	I	C		T	W		U	C	N	N	
		N18W06.5	I	C		T	W		C	N	P	N	
		N18W06.6	F	C		T	W		C	C	S	N	
		S11E03.36	F	C		UNK	U	I	C	C	N	N	
		N06W20.7	F	C		UNK	U	T	N	C	N	N	
PH14		PH14.11	I	C		T		C	C	SS	N	N	
		R04.6	C	C	Nux	T		C	G	E	N	N	
		S09W22.3	F	C		P		BIRD	N	C	B	N	
		N08W02.4	F	C		T	W		C	C	P	N	
		S11E07.12	I	C		T	W	C	I	C	U	N	
		S11E14.12	C	C		T	W		C		N	N	
		S11W04.8	I	C		T	W		C	C	N	N	
		R11.36	C	C		T	W	N	D	E	N	N	
R42		R42.20	I	C		T	W		I		S	N	
		S08W05.10	I	C		T		C	D	SS	N	N	

		S09W08.9	I	C		T	W		C		S	Y	CANAL END GROUND OFF
		S09W15.7	I	C		W		C	N	C	N	N	
		N08W19.4	F	C		T	W		N	C	L	N	
		N18W06.33	F	C		T	U	L	C	C	N	N	
PH12	FILL	PH12.3	F	C		T	W		C	C	N	N	
		S11W02.27	F	C		T	W		C	N	N	N	
		S13E01.16	F	C		T	W		C	C		N	
B212	*	B212..5	I	C		T	W		I	C	N	N	INSIDE BOWL B212.2 - ON LOAN
B212	*	B212.5	I	C		T	W		I	C	N	N	INSIDE BOWL B212.2 - ON LOAN
B212	*	B212.6	I	C		T	W		C	C	N	N	INSIDE BOWL B212.2
B212	*	B212.7	I	C		T	W		C	C	N	N	INSIDE BOWL B212.2
B212		B212.8	I	C		T	W		I	C	N	N	INSIDE BOWL B212.2 ON LOAN
		N08W03.2	F	C		T	W		U	N	S	N	L 2 ABOVE COLLAPSED WALL
		N09W04.2	F	C		P	W		G	C	N	N	
	SURF	N10W04.1	F	C		T		CIR	N	C	N	N	N10W4.1
		N20E08.3	I	C		T	W	N	C	SS	N	N	
Pbl2 R02	FILL	Pbl02.R02.11	I	C		T	W		C	C	N	N	
R4	FF	Pbl02.R04.10	I	C		T		C	D / G	C	N	N	
PH18	FILL	PH18.5	I	C		T	W		C		U	N	
R9	WF	R09.24	F	C		UNK		I	G	E	UNK	N	INTERIOR WALL FILL
R13		R13.1	F	C		T	U	I	CG	C	N	N	S wall trench
R29	WS	R29.39	I	C		T	W		C	C	N	N	SW CORNER OF WALL SLOUGH
R29 E.BNCH	CLNUP	R29.50	C	C		T	W	C	C	C	N	N	
	FILL	R32.22	C	C		T		N	C	C/E	P	N	
TR 1-F	FILL	R36.98	F	C		T		R	N	SS	N	N	

		S13E04.13	F	C		T	W		U	C	N	N	
R41	FILL	R41.20	F	C?		UNK	U	T	N	N	N	N	
				84									
PH13		PH13.27	F	CARDIUM		UNK		SQ	N	SS	EXT	N	
PH11	FILL	PH11.7	F	CARDIUM		UNK			N	SS	N	N	
		S11E03.24	I	CE	ALB	P	W		U	U	N	N	
		S13E07.5	C	CE		P	W	N	C	N	P	N	
		N10W13.13	C	CE	ALB	P	W	N	D	C	N	N	
K 1	FILL	K1.36	I	CE	ALB	P	W		G		N	N	
		N12W12.3	C	CE		P		N	D	C	N	N	
		S11E02.25	I	CE	ALB	P	W		U		N	N	
		S08E01.25	C	CE	ALBA N	P	W	N	P	N	N	N	
		S13E08.4	C	CE	ALB	P	W		P		P	N	
		S11.E07.11	F	CE		UNK	TU		N	C	U	N	
		R02.49	I	CE		P?		CON	UNK	SS	N	N	UNABLE TO TELL IF WORKED, EXTERIOR IS 75% MISSING
R28	FLRFL	R28.8	C	CE	JUV	B	W	N	D	N	N	N	
	Fill	R28.18	I	CE?		UN	W	N	N	E	N	N	
		S09W06.18	F	COC									
		S11E15.21	F	COC		UNK	U	F	N	CE	N	N	
	*	S13E03.5	F	D		UT	N		N	C	U	N	South side of wall
		S09W23.7	F	FOSSIL		FOSSIL			N	SS	N	N	
		S03W17.1	I	Fossil Shell					N	C	N	N	
		N18E17.27	F	FW CLAM		UNK			N	NAC	N	N	3 Small pieces
		N18W06.37	I	FW CLAM		P	C	F	C	N	N	N	
		N06W16.26	F	FW CLAM ?		UNK	U	I	C	E	N	N	

		N06W16.18	F	FW SNAIL		UNK	U	I	N	C	N	N	
		N10W16.4	F	FW SNAIL		UNK		N		SS	N	N	
R37		R37.57	C	FW SNAIL		UN		N	N	C	N	N	Sq. N9 E1
		S13E12.5	F's	FW SNAIL		UNK	U	I	N	C	N	N	BROKEN INTO SEVERAL PIECES
		N10W12.1	F multiple	FW SNAIL					N				
		N08W02.7	F	FW SNAIL		UNK	U	I	N	N	N	N	TWO PIECES
		N20E15.9	F	FW SNAIL		UNK		I	N	NAC	N	N	
		S09W08.2	F	FW SNAIL		UNK		I	N	C	N	N	
		S11W08.8	F	FW SNAIL		UNK	U	I	N	U	N	N	ARTIFACT CRUSHED
		N08E20.4	I	FW SNAIL		UNK		CIR	N	C	N	N	
		S09W02.2	C-4Pieces	FW SNAIL		P		CIR	D	E	N	N	4 Small pieces that fit together
R28	FILL	R28.9	I	FW SNAIL		UNK	U	C	N	E	N	N	TWO PIECES
	W.W.FILL	R29.33	C	FW SNAIL		W		CIR	N	C	N	N	
K 1	FILL	K1.86	F	FWC		UNK		I	C	SS	N	N	
		S09W20.10	F	FWC		UNK		CIR	SS	E	N	N	
K 1	FILL	K1.87	F	FWC		UNK			N	SS	N	N	
		N18W08.10	I	FWCLAM		P	UNK	CIR	BI	NA	N	N	
		S11W01.29	F	FWCLAM		UNK		I	N	N	N	N	
		S11E08.10	F	FWCLAM		UNK		I	N	C	U	N	BROKEN INTO 3 PIECES
	SURFACE	S12E04.1	F	G	G	BR		T	N	N	N	N	
		S11W10.8	F	G	SUB OBS	UNK	U	CIR	N	E	N	N	
		S11W08.71	F	G	G	P	BB	T	G	C	N	Y	REWORKED FROM A BROKEN BRACELET
		S13W08.71	F	G		BR			D	C	N	N	

		S11E15.23	C	G	SUB OBS	P	W	CIR	G	C	N	N	
		S13E04.16	F	G	G	BR		ST	N	C	N	N	
		S11E08.25	F	G	G	BR		O	N	N	N	N	
		S11E14.21	C	G	Gigan tea	P	W	N	C	E	M	N	
		S13E04.17	F	G		BR		SR	N	C	N	N	
PH7		PH07.13	F	G		BR			N	C	N	N	
140		S09E20.2	F	G		R			N	E	N	N	
		N07E11.2	F	G	G	PR		SSQ	N	C	N	N	
		N15E16.21	C	G		UNK	TR	R	N	C	N	N	
		N18E14.14	F	G		BR	U	CON	N	C	N	N	
		N18E16.1	I	G		UNK	U	N	N	C	N	N	
		N18W08.9	F	G	JUV	P	UNK	CIR	D	C	N	N	
		N20E14.8	F	G		RING			N	C	N	N	
		N26W10.8	F	G	G	BR*		SQ	G	C	N	?	POSSIBLE PENDANT FROM BROKEN BRACELET
		S09W08.22	C	G	SUB OBS	P	W	CIR	G	N	N	N	
		S11E12.13	F	G	G	BR		SQ	N	C	N	Y	ABRADED ON ONE END/ALSO POSSIBLY INCISED
		S11E13.12	F	G	G	BR		O	N	E	N	Y	GRINDING ON ONE END
		S11W02.2	F	G		BR		SSQ	N	C	N	N	
		S11W02.6	F	G		BR		SR	N	N	B	N	
		S11W10.3	F	G	G	UNK		I	N	N	N	N	
		S13E12.1	F	G	GIG	BR	W	I	N	BURNT ?	N	N	
		S13E12.3	F	G	G	BR		SSQ	N	BURNT	N	N	
	SI	N18E17.8	F	G		UN		I	N	C	N	N	POSSIBLE UMBO PORTION OF BRACELET
	GEN.	Sq.S10W06.16	F	G	SUB OBS	BR	W	CON	G	N	N	N	

K 2	FILL	K2.14	F	G	G	P	BB	O	G	E	N	Y	MADE FROM BROKEN BRACELET
R11	FILL	R11.2	F	G	G	BR		SR	N	BURNT	N	N	
R19	FF	R19.1	F	G	G	P*	BB	UNK	G	E	N	Y	MADE FROM BROKEN BRACELET
R27	WF	R27.3	F	G	G	BR		CIR	G	E	N	N	
R29	WF	R29.32	F	G	sp	R*		T	N	C	N	N	S1/2 OF W. WALL FILL;POSSIBLE BRACELET FRAG
R31		R31.1	F	G	G	BR		O	N	C	N	N	
R37	WF	R37.53	F	G	G	BR		SR	N	E	N	N	
R41		R41.16	F	G	G	BR		O	N	N	N	N	
R41	FL	R41.17	I	G	G	BR		SR	N	N	N	N	PROV=N-S TRENCH OF R 41
R42	WF	R42.18	C	G	G	U	AWL	SQ	N	C	N	N	MADE FROM BROKEN BRACELET
R42		R42.7	F	G	G	BR*		T	N	C	N	N	S. WALL, MIDDLE OF N. WALL; POSSIBLE RING
	SURF ACE	S09W10.3	F	G	G	BR		R	N	C	N	N	
		N09W02.1	F	G	G	BR		R	N	C	N	N	LEVEL: ABOVE PLASTERED EXTERIOR SURFACE
	GEN.	Gen.125	F	G	SUB OBS	BR	W	CON	G	N	N	N	
	GEN.	Gen.126	F	G		UT	W	SR	N	C	E	N	
		N10E22.5	I	G		UT	N	O	N	C	N	Y	Bracelet Frag reworked into a needle
		N10W10.7	F	G		BR		SR	C	SS	N	N	
		N12E03.8	F	G		D	U	I	N	N	N	N	
		N18W06.4	F	G		BR		SR	N	C	N	N	
		N18W08.12	F	G		BR		SR	N	E	N	N	
		S05W17.1	F	G		BR		O	N	C	N	N	

		S05W17.2	F	G		BR		O	N	C	N	N	
		S11E05.12	F	G	G	BR*		O	GC	E	N	N	POSSIBLE PENDANT
		S13W03.11	F	G	G	P*	BB	SR	G	N	N	Y	MADE FROM BROKEN BRACELET
		N17W01.2	F	G		BR		SR	N	C	N	N	
		S09W13.2	F	G		BR		SR	N	C	N	N	
		S13E03.4	C	G		P		N	G	C	U	N	UMBO BROKEN OFF
R14	FILL	R01.4	F	G	G	P	BB / C	SR	C	C	N	Y	REWORKED FROM A BROKEN BRACELET
	FILL	R14.11	F	G		BR			C	C	N	N	
R14		R14.10	F	G	G	P	BB	CIR	GC	C	N	Y	REWORKED FROM A BROKEN BRACELET
K1		K1.183	F	G		R		R	N	B	N	N	
K 1	FILL	K1.46	F	G	G	UNK		I	N	E	N	N	
		N06W14.22	C	G	JUV.	B	W	N	G	N	N	N	
R42		R42.3	F	G	G	BR		T	N	E	N	N	
		S11E14.13	F	G	G	P	BB	SQ	G	E	N	Y	MADE FROM BROKEN BRACELET
		S11E15.24	F	G	SUB OBS	UNK	U	CIR	N	E	N	N	
		N06W14.14	C	G	JUV.	B	W	N	G	N	O	N	
		N06W14.15	C	G	JUV.	B	W	N	G	N	N	N	
		N06W14.16	C	G	JUV.	B	W	N	G	N	N	N	
		N06W14.19	C	G	JUV.	B	W	N	G	N	N	N	
		N06W15.40	C	G	SUB OBS	BR	W	CIR	G	C	N	N	
		N06W16.24	C	G	JUV.	P	W	N	G	E	N	N	
		N06W18.21	F	G		BR	U	R	N	C	N	N	
Pbl2 R04		Pbl02.R04.12	F	G		BR		O	N	C	N	N	N9 E20

K 1	FILL	K1.59	F	G	G	P	BB	CIR	G	N	P	Y	MADE FROM BROKEN BRACELET
K 2	FILL	K2.15	F	G	G	BR	U	I	N	E	UNK	N	POSSIBLE BRACELET FRAG.
		S09W1.43	I	G		BR		CIR	D	C	N	N	
K 1	FILL	K1.49	F	G	G	UNK		I	N	E	N	N	
K 1	FILL	K1.85	F	G	G	BR		O	N	C	N	N	
K 2	FILL	K2.10	C	G	SUB OBS	P	W	CIR	G	E	N	N	
		N06W16.34	F	G		BR	W	SR	N	N	N	N	
		N09E20.2	F	G		R			N	E	UNK	N	
'PBLO 2.R1		Pbl02 R01.5	F	G		BR		SR	N	E	N	N	
		S11W02.28	F	G		BR		SR	N	C	N	N	
K 1	FILL	K1.63	F	G	G	BR		O	N	E	N	N	
		N06W14.40	F	G		UNK	U	I	N	SS	N	N	
		S09E01.6A	F	G		BR		SR	N	B	N	N	
		S09E01.6B	F	G		BR		SR	N	B	N	N	
K 1	FILL	K1.2	F	G		BR	W	I	N	BURNT	U	N	2 PIECES FROM SAME BRACELET
PH13		PH13.6	F	G	G	BR	W	CON	N	C	N	N	
		S08E01.4	F	G	G	BR		P	N	E	N	N	
K 1	FILL	K1.62	F	G	G	BR		O	N	N	N	N	
K 1	FILL	K1.64	F	G	G	BR		P	N	BURNT	N	N	
		N06W15.38	C	G	JUV.	B	W	N	G	N	N	N	
ABOV E PGS		N20W10.17	F	G		BR		SR	N	C	N	N	
		N06W17.3	F	G		BR	W	CON	U	C	N	N	
		N16E16.6	F	G		UNK	U	I	N	C	N	N	
		N18E14.5	I	G		UNK	U	N	N	C	N	N	
		N18E15.5	C	G		BR	C	CIR	P	C	N	N	
		N18W02.9	C	G	SUB OBS	P	W	CIR	G	C	N	N	

		N20E17.7	F	G		BR		SR	N	B	N	N	
R12	SUBFL	R12.9	F	G	G	BR		R	N	C	N	N	
		S07W16.10	F	G		BR		SR	N	SS	N	N	
		S08W05.11	C	G	SUB OBS	P	W	CIR	G	N	N	N	
		S08W07.21	F	G	G	UNK		I	N	N	N	N	
		S09E01.53	F	G	G	BR		SQ	N	E	B	N	
		S09W09.1	F	G	SUB OBS	P	D	I	P	C	N	N	
		S09W21.5	F	G		BR		SR	D	C	N	N	
		N26W10.6	F	G	G	BR		SR	N	C	N	N	
		S13E01.2	I	G		BR	W	I	G	N	B	N	
		N18E10.1	I	G	G	UNK		O	N	N	N	N	
		N06E11.1	F	G		BR	W	I	N	C	N	N	
		N06W14.9	F	G		BR	W	CON	U	C	N	N	
		N10W17.11	F	G		BR	W	I	G	SS	N	N	
		N10W17.2	F	G	G	BR		R	N	C	N	N	
		N18E15.9	F	G		BR	W	O	N	C	N	N	
		N18E17.12	C	G		B	D	CIR	G	N	N	N	
		N18E17.21	F	G		BR	W	O	N	N	N	N	
		PH06.2	F	G		BR		O	G	C	N	N	
		S07W06.3	F	G	G			I	N	N	B	N	
		S07W07.3	F	G	G	BR		R	N	E	N	N	
		S07W16.1	F	G		BR		I	N	C	N	N	S7W16.1 Umbo only
		S07W17.1	F	G		BR		CIR	N	C	UN	N	S7 W17.1
		S08W07.23	F	G		BR	U	I	N	W	N	N	POSS. BRACELET FRAG.
		S09W06.13	I	G		BR			N	SS	N	N	
		S11E06.18	F	G	G	BR		R	N	C	N	N	
		S11W05.2	C	G		UT	N	CIR	N	N	U	N	

		S11W05.4	C	G	Juven ile	p	w	FAN	G	C	U	N	Juvenile Glycymeris Pendant with umbo hole broken out
		S11W06.5	F	G		BR		SR	N	C	B	N	
		S11W11.1	F	G		UNK	U	I	N	C	N	N	
		S13E03.6	F	G		BR		SR	N	C	E	Y	ONE END GROUND
		S13W01.2	F	G		BR		T	G	C	U	N	
		S11W05.17	F	G		UNK	U	I	N	C	N	N	
		N12E13.10	F	G		BR	U	SR	G	C	N	N	POSS. BRACELET FRAG.
		N15E14.7	C	G	JUV.	B	W	N	G	N	P	N	
		N17W11.13	I	G	G	BR		CIR	G	E	N	N	
		N18E16.6	F	G		BR	W	CON	G	N	B	N	
R28		N18E19.19	F	G		BR		R	N	C	N	N	N18 E19 NE 1/2
		N18W09.16	F	G		BR		T	N	E	N	N	
R3		R03.8	F	G		BR		SR	N	C	N	N	
RM32		R32.12	F	G		UNK		I	N	C	N	N	UNIT 2 ??
		S09W08.5	F	G	G	BR		CON	N	C	N	N	
		S11E03.33	F	G		UNK	U	I	N	C	N	N	
		S11E03.44	F	G		BR	W	SR	N	C	N	N	
		S11E07.13	F	G		BR		SSQ	C*	C	N	Y	PARTIALLY GROUND HOLE IN ONE END
		S11E12.14	F	G		UNK	U	I	N	C	N	N	
		(FS 37)	F	G									
		N06W17.11	F	G		BR	W	I	G	C	N	N	
		N10W14.16	C	G	SUB OBS	P	W	CIR	G	N	N	N	
		N11W01.3	F	G		BR/P		R	C	C	N	Y	BRACELET FRAG THAT HAS UNICONICALLY DRILLED HOLE IN CENTER
		N14E01.7	F	G	G	BR		O	N	E	N	N	

		N16E17.2	F	G		BR	W	SR	N	C	N	N	
		N16E17.3	F	G		BR		SR	N	SS	N	N	
R37	--	R37.52	F	G	G	BR		SR	N	C	N	N	
		S09W02.3	C	G	SUB OBS	P	W	CIR	G	E	N	N	
		S11E04.7	F	G	G	BR		SSQ	N	C	N	N	
		S11E05.13	F	G	G	BR		O	N	C	N	N	
		S11E16.17	F	G		BR		SR	N	C	N	N	
		S11 E16.25	F	G		BR		SQ	N	C	N	N	
		S11W16.17	F	G	G	BR		SCO N	N	C	N	N	
		S11W16.25	F	G	G	BR		P	N	N	N	N	
R43	FILL	R43.33	F	G		BR		SR	G	E	N	N	
		N06W15.31	F	G		BR	W	SR	U	C	N	N	
		N18W01.22	F	G		BR	W	I	G	N	B	N	
		N18W05.8	C	G	G	P*	W	N	G	N	B	N	POSSIBLE SCOOP?
PH15	FILL	PH15.1	F	G		BR		SR	N	C	N	N	
		S09W17.16	F	G		BR		RHO MBU S	N	C	N	N	
		N18W03.40	C	G		B	D	CIR	G	N	N	N	
Tr 1		TR1.6	F	G	G	BR		CIR	N	C	N	N	
*		N06W06.1	F	G	G	BR		O	N	N	N	N	FOUND BELOW R 11
K 1	FILL	K1.61	F	G	G	BR		O	N	E	N	N	
		N18W02.5	C	G	G	BR		N	G	E	N	N	
PH14		PH14.10	F	G		BR		SR	N	SS	N	N	
		S07W08.3	F	G	G	BR		O	N	N	N	N	
TM01, TR02		TM1.8	F	G	G	BR		ST	N	C	N	N	
BP242		N18W01.39	F	G		BR		SR	N	B	N	N	
		N18W03.14	C	G	SUB OBS	P	W	CIR	G	E	N	N	

Pbl02 R04		Pbl02.R04.14	C	G		UT	N	O	N	C	N	Y	Bracelet Frag. reworked into a needle on one end and the other end flattened
		S13E02.8	F	G		BR	I	T	G	C	N	N	
PIT 13	FILL	PIT13.4	F	G		BR		SR	C	SS	E	N	
K 1	FILL	S09W02.42	F	G		BR	W	I	G	SS	U	N	
		S11E05.15	F	G	G	UNK	U	CIR	N	N	N	N	
		S11E11.16	F	G	G	BR		CIR	N	C	NN	N	
		S13E14.2	F	G	G	BR		SR	N	C	N	N	
PIT 1		R01.28	I	G		BR	W	O	N	C	N	N	
R41	W.FAL L	N07W05.4	F	G		BR		SR	N	C	N	N	
	FILL	N11E01.3	F	G		BR		CIR	G	EN	N	N	
B200		B200.11	C	G	SUB OBS	P	W	CIR	G	E	N	N	PER J.HOHMANN
B200		B200.13	C	G	SUB OBS	P	W	CIR	G	E	N	N	FOUND IN VIAL W/B200, BUT NO PROV.
R17 Pit		B210-211.5	C	G	SUB OBS	P	W	CIR	D	E	N	N	
B200		B200.11	C	G	SUB OBS	U	W	CIR	G	E	N	N	PER J.HOHMANN
B200		B200.13	C	G	SUB OBS	P	W	CIR	G	E	N	N	FOUND IN VIAL W/B200, BUT NO PROV.
R17 Pit		B210-211.5	C	G	SUB OBS	P	W	CIR	G	E	N	N	
B215		B215.3	C	G	SUB OBS	P	W	CIR	D	E	N	N	NO OTHER PROV. INFO
B250		B250.10	F	G		BR	C	Cir	N	N	N	N	
B250		B250.3	C	G		P	W	C	D	B,N	O		
	Unk	Gen.129	C	G		UT		Butto n	C-Inco mpl	C	N	N	Incomplete Perforation
	*	Gen.130	I	G		BR		O	N	C	N	N	North Back Dirt Pile
K 1	FILL?	K1.70	F	G		BR	U	O	N	N	U	N	

	FF	K2.31	F	G		BR	U		C	C	N	N	UMBO PORTION
RM11/41	Wl.Fl	N07W05.1	F	G		BR		CIR	G	SS	N	N	N7W5.1
		N18E14.7	C	G	JUV	P		F	G	SS	Y	N	
		N18W03.39	C	G		B	D	CIR	G	N	N	N	
		N18W03.41	I	G		B	D	CIR	G	SS	U	N	
		N18W10.11	C	G	JUV.	P	W	N	G	C	N	N	
	FF	R02.32	C	G	Juvenile	P		N	G	SS	N	N	
E.WALL TR	FILL	R03.7	F	G		BR		SR	N	X	N	N	
TR 1	FILL	R04.5	F	G		UT	Needle	T	N	C	N	Y	Bracelet fragment sharpened on one end to make a needle.
R09 P02	B-LO FLR	R09.36	F	G		UNK	U	I	N	F	N	N	SE COR.-FEWKES PIT BELOW FLR.
R10	WALL FILL	R10.3	F	G	G	UNK		R	N	R	N	N	
R10		R10.14	F	G		BR			N	C	N	N	
R11	FILL	R11.7	F	G		BR		O	N	C	N	N	Provenience includes: T - J
R11	FILL	R11.9	I	G		UT	N	T	N	C	N	Y	
E.WALL	FILL	R19.11	F	G		BR		SR	N	SS	N	N	2 PIECES
RM29	WF	R29.16	F	G		BR		SR	N	C	U	N	W. END OF W. TR.,
R30	FILL	R30.2	F	G	G	UNK	U	I	N	N	B	N	CARVED SHELL-SHAPE RESEMBLES A TOOTH
R30	FILL	R30.3	C	G	JUV	P	W	CIR	G	SS	B	N	
	WF *	R32.18	F	G		BR		O	N	C	N	N	West Wall Fill
R32	FILL	R32.2	F	G		BR	W	SR	U	N	N	N	
R35	FILL	R35.44	C	G	JUV	W		F	N	SS	N	N	FILLED WITH DIRT
TR 2-A	FILL	R36.125	F	G		BR		SR	N	C	N	N	
TR 1-E	FILL	R36.130	F	G		BR		SR	N	SS	N	N	
TR 1	FILL	R36.146	F	G		BR		SR	N	C	N	N	

TR 1	FILL	R36.147	F	G		BR		SR	N	E	N	N	
R42	FILL	R42.1	F	G		R		O	G	C	U	N	So. Wall
	FILL	R42.25	F	G		BR	W	N	G	C	U	N	
S9- S11 X- TR	FILL	S10W06.1	F	G		BR			N	SS	N	N	
	WALL FILL	S11E15.19	F	G	SUB OBS	UNK	U	I	N	E	N	N	
	WALL FILL	S11E15.20	C	G	SUB OBS	P	W	CIR	G	E	N	N	
		S13E10.3	F	G		BR	W	I	N	C	N	N	
B214		B214.3	I	G		BR		Cir	D	E, C	U		
R28	FLRFL	R28.10	C	G		B	D	CIR	C	N	B	N	W wall
	FF	Pbl02.R04.9	C	G (Juvenile)		R		O	G	E	E	N	Notch cut in umbo
	GF	R16.20	F	G?		UNK		I	N	C	N	N	FROM SHELL HINGE?
		N08W03.5	I	HALIOTIS	SP	P	U	O	C	NA	N	N	FOUND AT LEVEL OF ORANGE CLAY NEAR COPPER BELL
K 1	Fill	K1.38	F	HALIOTIS	SP	P	U	I	C	E	N	N	
		S11E16.18	C	HALIOTIS	SP	P	I	C	C	E	N	N	
PH16	FILL	PH16.2	F	HALIOTIS	SP	M	U	SQ	N	NA	N	N	
		S11E15.22	F	HALIOTIS	SP	UNK	U	I	N	NA	N	N	
K 1/PH1 1	FILL	K1.84	F	HALIOTIS		UNK		I	N	E	N	N	
		N06W15.35	F	HALIOTIS	SP	UNK	U	I	N	SS	N	N	
		N16E14.2	F	HALIOTIS		UNK		I	N	SS	N	N	
PH7	FILL	PH07.6	C	HALIOTIS	SP	P	BI	SR	C	E	P	N	
		S08E01.29	I	HALIOTIS		P	BIRD	BIRD	B	SS	N	N	
		S08E11.29	C	HALIOTIS	SP	P	W	FI	B	S	N	N	
		N08E16.8	I	HALIOTIS	SP	UNK	D	CIR	C	N	N	N	
		Gen.158	I	HALIOTIS		B	D	CIR	C	SS	N	N	

PH13		PH13.4	I	HALIOTIS	Cracher.	p	U	F	C	E	N	N	
N.WALL TR	FILL	R03.3	F	HALIOTIS		UNK		TR	C?	N	N	N	MIGHT BE A CONICALLY DRILLED HOLE ON THE EDGE OR A NATURAL BREAK
R10		R10.4	C	HALIOTIS	SP	P	I	F	N	U	N	N	
		N16E20.1	F	L		UNK		SR	N	C	N	N	
		N16E20.1	F	L		UNK		SR	N	C	N	N	
K 1	FILL	K1.31	C	L		P	C	SQ	B	E	N	N	
		N06W15.15	C	L		P	C	F	C	E	N	N	
		N08W02.24	F	L		UNK	U	R	N	W	N		
		N08W15.16	F	L	ELATUM	D	U	I	N	B	N	N	POSSIBLE DEBRITAGE
		N11W11.5	C	L		UT	S	T	N	N	N	N	
		N18E17.5	F	L		D	U	I	N	C	N	N	
		S05W05.1	F	L	ELATUM	UNK	U	SR	N	N	N	N	FRAGMENT OR DEBRITAGE
		S11E05.26	F	L	ELATUM	UNK	U	F	N	E	N	N	
		S13E01.18	F	L	ELATUM	UN	U	R	N	C	N	N	
R29	WF	R29.58	F	L		UNK		R	N	C	N	N	S1/2 OF W. WALL FILL
		N15E18.1	F	L		UNK		T	N	C	N	N	
TM01, TR02		TM1.9	F	L	ELATUM	UNK	U	I	U	C	N	N	
		N08W02.22	F	L	ELATUM	UNK	U	I	N	C	N	N	
		N17W01.1	F	L		UNK		I	N	C	N	N	
		N18E19.2	C	L		P		I	B	C	U	N	
		N18W08.15	C	L		UT	S	F	N	BURNT	O	Y	POSS.SCRAPER
		N18W08.2	I	L		UNK		I	N	C	N	N	
		N18W08.5	F	L		UNK		T	N	E	N	N	
		N18W09.1	F	L	ELATUM	UNK	U	SR	N	E	N	N	

		N20E07.1	C	L		P		F	G	C	N	N	COMPLETE FROG EFFIGY
		N26W11.3	F	L	ELATUM	UNK	U	F	N	E	N	N	
PH6		PH06.14	F	L		UNK		R	N	E	N	N	
		S09W18.5	F	L		UNK		TR	N	C	N	N	
		S09W19.6	F	L		UNK		T	N	C	N	N	
		S09W20.12	F	L		UNK		TRAP	N	C	N	N	
		S09W20.13	F	L		UNK		T	N	ER	N	N	
		N16E18.5	F	L		UNK		R	N	C	N	N	
		S11W09.2	F	L		UNK	U	T	N	C	N	N	
Pbl2 R03	FILL	Pbl02.R03.3	F	L	ELATUM	UN	U	I	N	C	N	N	
		S07W15.8	F	L		UNK		T	N	C	N	N	
		N10W03.9	F	L		UNK	U	I	U	E	N	N	
R43	FILL	R43.2	F	L	ELATUM	UNK	U	SSQ	N	E	N	N	
		S13E01.17	F	L		D	U	I	N	C	N	N	
		N06W16.28	F	L		UNK		T	N	BURNT	E	N	
PH08	FILL	PH08.7	F	L	ELATUM	UNK	U	I	N	E	N	N	
K 1	FILL	K1.32	I	L		P	C	F	B	SS	N	N	
K 1	FILL	K1.33	C	L		P	C	F	C	N	N	N	
		N06W14.37	F	L		D	U	I	N	BURNT	N	N	
Pbl02		N13E18.3	C	L		P	I - (Frog)	N	G	C	N	N	Juvenile Glycyermis shell incised into a frog figure with a hole ground in top
Pbl2 R01	FILL	Pbl02.R01.19	F	L		UNK	U	I	N	N	N	U	WORKED
R42		R42.10	C	L		B	BI	O	C	C	N	N	
K 2		K2.16	C	L	ELATUM	UNK	D	CIR	N	E	N	N	
K 1	FILL	S09E02.11	I	L		P	C	F	G	N	P	N	HUMAN FIGUERINE
		N10W11.1	F	L	ELATUM	UNK	U	I	N	C	N	N	

		N10W14.17	F	L		D	U	F	N	N	N	N	POSSIBLE DEBITAGE
		N12W12.6	F	L		UNK		S	N	C	N	N	
		N12W14.3	F	L	ELAT UM	UNK	U	I	N	C	N	N	
		N13W16.2	F	L		UNK		SR	N	C	N	N	
		N18W01.7	C	L	ELAT UM	P		SQ	C	N	N	N	
		PH06.1	I	L		P	Cut Out	I	N	C	N	N	Cutout Shell Pendant
	R32	R32.19	I	L		UNK		SSQ	N	E	N	N	
		S09E02.1	F	L		UNK	U	I	N	SS	N	N	
		S11W07.5	F	L	ELAT UM	UNK	U	I	N	C	N	N	
		N18W07.7	F	L		UNK		I	N	C	N	N	
		N10W12.7	F	L	ELAT UM	UNK	U	I	N	C	N	N	
		N12E11.1	F	L	ELAT UM	UN	U	I	N	C	N	N	
		R13.47	F	L		UNK		I	N	C	N	N	
		S09E02.12	F	L	ELAT UM	UNK	U	I	N	E	N	N	LEVEL 4A
		S09W10.5	C	L		B	BI	O	C	E	N	N	
		S11E07.14	F	L		UNK		R	N	C	N	N	
		S11W02.31	F	L	ELAT UM	UN	D	F	N	C	N	N	
		N06W12.3	F	L		UNK	U	CON	N	N	N	N	
		N06W17.4	F	L		UT	U	I	N	N	N	N	POSS.SAW/SCRAP ER?
		N11W11.2	F	L	ELAT UM	UN	U	SSQ	N	C	N	N	
		N18W06.8	C	L		B	BI		C	E	N	N	
R13		R13.22	F	L		UNK		I	N	SS	N	N	
R36		R36.51	I	L		P		"S"	N	C	N	N	
		S07W15.7	F	L		UNK		PEN T	N	C	N	N	
		S07W17.7	F	L		UNK		T	N	C	N	N	

		S07W19.5	F	L		UNK		SR	N	C	N	N	Possibly from a pendant. Appears shaped
PH15, 16		S08W06.7	I	L		P		F	C	SS	N	N	
		S11E02.19	F	L	ELAT UM	UN	U	R	N	C	N	N	
		S11E03.16	F	L	ELAT UM	UNK	U	I	N	E	N	N	
Tr 1		TR1.7	F	L		UNK	U	I	N	C	N	N	
K 2	FILL	K2.13	F	L	ELAT UM	UNK	U	F	N	C	N	N	
		N20E20.16	F	L		UNK		R	N	B	N	N	
PH14	FILL	PH14.3	C	L	ELAT UM	P		SR	B	N	B	N	
		S07W15.6	I	L		UNK		FAN	N	C	N	N	
		S11E04.8	F	L	ELAT UM	UNK	U	I	N	B	N	N	
		N06W16.9	C	L	JUV.	UNK	W	N	N	C	N	N	
		S11E03.12	C	L		P	C	SR	B	N	N	N	
		S11E14.25	F	L	ELAT UM	UNK	U	I	N	E	N	N	
Tr 1		TR.1	F	L		D	U	I	N	N	N	N	
		S13E08.5	F	L	ELAT UM	UNK	U	I	N	E	N	N	
		N18W04.6	F	L		UNK	U	I	N	SS	B	U	
		S09W08.1	C	L		B	BI	O	C	C	N	N	
		S11W05.19	C	L		UT	S	L	N	C	E	Y	
		S11E11.19	F	L	ELAT UM	UN	U	I	N	C	N	N	
		S13E04.15	F	L		UT	*	SR	N	N	M	U	
K 1	FILL	K1.44	F	L	ELAT UM	UNK	U	F	N	E	N	N	
		N10W14.11	F	L	ELAT UM	UN	U	I	N	E	N	N	
		N17W15.2	F	L		UNK		R	N	C	N	N	
Pbl2 R01		Pbl02.R01.46	F	L		UNK		T	N	E	N	N	

		N08E19.4	F	L		UNK		T	N	E	N	N	
	SCREEN	S11E14.27	I	L		P	C	F	U	N	N	N	ZOOMORPH OR HUMAN FIGURE
R43	W.WALL INT	R43.32	F	L		UNK		R	N	C	N	N	
B214		B214.4	C	L		Misc	W	Fig	I,D	E,W			Carved frog w/pendant hole
SURF. COL.		Gen.122	C	L		UNK	U	SR	N	E	N	N	
	SL	N18E17.24	C	L		P	CUT	FI	B	E	P	N	Burial 261 pit slough
		N18E20.1	C	L		P	I	O	B	C	N	N	
		N18E20.2	F	L		UNK		I	N	C	N	N	*LEVEL;-0A + 36 - + 10CM ??
Pbl2 R02		Pbl02.R02.12	F	L	ELATUM	UN	U	I	N	C	N	N	LEVEL=20CM OF W.END
Pbl2 R02	FLRFL	Pbl02.R02.13	F	L	ELATUM	UN	U	I	N	C	N	N	
Pbl2 R03	FILL	Pbl02.R03.4	F	L	ELATUM	UN	U	R	N	C	N	N	
	WS	Pbl02.R04.11	F	L		D		S	N	C	N	N	
Feature 2		Pbl02.R04.13	F	L		UNK		T	N	C	N	N	
	FILL	PH08.1	F	L		UNK		I	N	SS	N	N	
	FILL	PH08.9	F	L		UNK		R	N	C	N	N	
R01	CLNUP	R01.3	I	L	JUV.	UNK	U	N	U	C	N	N	
R02	CLNUP	R02.3	I	L		UNK	U	R	N	SS	N	N	
R10	EXT WF	R10.12	F	L		UNK		R	N	C	N	N	R10EWALL.2 PREVIOUSLY
	FILL	R11.8	F	L		UNK		F	N	C	N	N	
	N.WF	R11.13	C	L		UNK		R	B	E	N	N	R11.13
	N.WF	R11.16	C	L		UT	S	T	N	C		N	R11.16 One beveled edge, one serrated edge- poss. soft scraper - fresh water shell frag.
E.WALL	FILL	R13.40	F	L		UNK		TR	N	C	N	N	

R14	FLRFL	R14.4	F	L	ELAT UM	UN	U	I	N	C	N	N	
	FF	R20.6	C	L	JUV	P		F	G	SS	N	N	
R29	FILL	R29.15	F	L		UNK	U	SR	N	C	U	N	
TR 2-D	FILL	R36.61	C	L	JUV	B/P		F	D	SS	N	N	
TR 2-D	FILL	R36.81	F	L		UNK		T	N	C	N	N	
	FILL	S09W01.61	F	L		UNK		T	N	SS	N	N	
		S13E26.1	F	L		UNK	U	SR	N	C	N	N	
		S18W01.1	F	L	ELAT UM	UNK	U	I	N	C	N	N	
		S18W01.1	F	L	ELAT UM	UNK		R	N	C	N	N	
R10	F	R10.2	F	L									
K 1	FILL	K1.47	F	L		UNK	U	I	N	C	N	N	
		N18W01.10	C	L ?		B	D	CIR	C	C	N	N	
		S09W02.33	I	L ?		B	C	O	C	N	N	N	
		S11E02.32	C	L ?		B	BI	O	C	C	N	N	
		S11E06.14	F	L ?	JUV ?	UNK	U	F	N	C	N	N	
		S11E11.15	I	L ?		B	BI	I	B	N	N	N	
		N18W02.10	C	L ?		B	D	CIR	C	C	N	N	
B.P.	FILL	N180W01.12	C	L ?		B	BI	O	B	N	N	N	
B.P.	FILL	N18W01.12	C	L ?		B	BI	O	B	N	N	N	
Room	Fill	R04.43	C	Laevacardiu m	<>	P	Cut	F	C	N	<>		Two perforations at 90°. Hopi maid hair whorl or bird depending on orientation.
		N18W06.25	I	N	COM P	B	W		I	C	N	N	
		S09W06.1	C	N	COM P	B	W		CC	C	N	N	
K 1	FILL	K1.55	C	N	COM P	B	W		P		N	N	
	FILL	N27W10.7	F	N		B	W	N	G	C	N	N	
		S09W07.3	I	N?		P	W	L	U	W	N	N	

W.WA LL	FILL	R41.26	F	N?		UNK		SQ	N	SS	N	N	
		N18W06.35	I	NE	SCAB RI	P	W	O	U	C	N	N	
		N18W06.13	C	NE	LUTE O	P	W	O	G	E	N	N	
PH16	FILL	PH16.1	I	NE	SCAB RI	P	W	O	U	E	N	N	
		S08W08.4	I	NE	LUTE O	UNK	U	O	N	N	N	N	
		N20E20.8	C	Nerita		B	U	N	C	E	N	N	
	FILL	R11.5	C	NERITA		B	W	N	C	C	N	N	
B105		B105.33	C	O		P	W	C	G	C	?		Possible wear from suspension at both ends
		S05W19.1	C	O		B	W	N	G	UnM	N	N	
RM.2		R02.20	C	O		B	W		G	SS	N	N	
R07	WF	R07.2	I	OL	DAM A	B	W		G	C	N	N	
R29		R29.43	I	OL	DAM A	B	W		G	C	N	N	
R42		R42.15	C	OL	DAM A	UNK	W		U	C	N	N	APEX BROKEN OFF
R37	FILL	R37.35	C	OL	DAM A	B	W		G	C	N	N	
PH15 *	FILL	PH15.5	I	OL	DAM A	B	W		G	C	N	N	PROV WAS PH14 OR PH15 OR PH16
		S11W10.5	C	OL	DAM A	B	W		G	C	N	N	
	WF *	R16.9	I	OL		B	W	N	N	C	N	N	East wall fill
	SURF	R28.31	C	OL		B	BA	B	G	N	N	N	
R41	W.FAL L	R41.50	I	OL		B			UNK	C	N	N	
<>	Fill	R11.87	C	OL	1.2	B	W	N	N	C	N	N	
<>	Fill	R11.88	I	Ol	1.7	B	W	N	N	C	N	N	Part of margin missing
	SURF ACE	S10E10.1	I	Olivella		B	W	O	U	C	U	N	
		S11E14.20	C	Olivella	DAM A	B	W		G	N	P	N	

		S13E04.14	C	Olivella	DAMA	B	BA		GG	N	P	N	
		S11E16.16	C	Olivella	DAMA	B	W		G	N	N	N	
		N06W15.16	C	Olivella		B	W	O	G	N	N	N	
		N06W17.1	I	Olivella		B	W	O	G	C	N	N	
		N08W21.2	C	Olivella	DAMA	B	W		G	C	N	N	
		N13W12.1	I	Olivella		B	BA	BA	G	C	N	N	
		N18W07.16	C	Olivella	DAMA	B	W		G	E	N	N	
		N18W07.6	C	Olivella		B	BA	N	G	SS	N	N	
		N25W10.3	I	Olivella	DAMA	B	W		G	N	N	N	
		N26W10.3	C	Olivella	DAMA	B	BA		GG	C	N	N	
		N26W10.9	C	Olivella	DAMA	UNK	W		U	N	N	N	APEX BROKEN OFF
		N26W11.5	I	Olivella	DAMA	UNK	W		U	E	N	N	
		S09W04.8	C	Olivella	DAMA	UN	--		N	N	N	N	
		S09W04.9	C	Olivella	DAMA	B	W		G	W	N	N	2ND HOLE, APPEARS TO BE NATURAL
		S13E12.4	C	Olivella	DAMA	B	W		G	C	N	N	
PH13	FF	PH13.1	C	Olivella		B	W	N	G	C	U	N	
B221		B221.11	C	Olivella	DAMA	B	W		G	N	N	N	
B242	PF	N18W01.13	C	Olivella	DAMA	B	BA		GG	E	U	N	
B242		N18W01.9	C	Olivella	DAMA	B	BA		GG	C	N	N	
Pbl2 R02		Pbl02.R02.8	C	Olivella	DAMA	B	W		G	N	N	N	
PH03	FILL	PH03.2	C	Olivella	DAMA	UN	--		N	C	N	N	
PH18	FF	PH18.6	C	Olivella	DAMA	B	W		G	E	U	N	

R10		R10.8	I	Olivella	DAM A	UNK	W		U	E	N	N	APEX BROKEN OFF
R27		R27.2	C	Olivella	DAM A	B	BA		GG	C	N	N	
R27		R27.7	C	Olivella	DAM A	B	BA		GG	E	N	N	
R27	FILL	R27.8	I	Olivella	DAM A	B	BA		GG	N	N	N	
R29	FILL	R29.37	C	Olivella	DAM A	B	W		G	C	N	N	
PH16		S11E15.36	C	Olivella	DAM A	B*	W		P*	N	N	N	PERFORATION IS IN SIDE OF SPIRE
B223		B223.2	C	Olivella	DAM A	B	W		U	N	U	N	APEX BROKEN OFF
		N18W06.36	I	Olivella		B	W	O	U	E	N	N	
		N12W13.2	C	Olivella	DAM A	B	W		G	C	N	N	
		N18W07.1	C	Olivella	DAM A	B	BA		GG	N	P	N	
		N18W11.1	I	Olivella	DAM A	UNK	W		U	C	N	N	APEX END BROKEN OFF
R11, TR 2	Fill	R11.6	C	Olivella		B	W	N	G	C	P	N	
		S09W11.2	C	Olivella		B			G	SS	N	N	
		S11W01.23	I	Olivella	DAM A	B	W		G	N	C	N	
		S09W19.5	C	Olivella		B	BA	BA	G	C	N	N	
Pbl2 R03	FILL	Pbl02.R03.2	I	Olivella	DAM A	UN	--		N	N	N	N	
EWAL L TR	UNIT 2	R33.8	I	Olivella		B			G	C	N	N	
K 1	FILL	K1.21	C	Olivella	DAM A	B	W		G	N	N	N	
		S11E02.40	C	Olivella		B			G	C	N	N	
		S11W02.2	C	Olivella		B	W		G	C	U	N	
K 1	FILL	K1.3	C	Olivella	DAM A	B	W		G	E	AP	N	
K 1	FILL	K1.13	C	Olivella	DAM A	B	W		G	N	N	N	

K 1	FILL	K1.54	F's	Olivella	UNK	B	UNK		G	E	N	N	SHATTERED INTO NUMEROUS PIECES
		S11W02.30	C	Olivella	DAM A	B	W		G	N	N	N	
		N12W13.7	I	Olivella		W			N	C	N	N	NATURAL HOLE PUNCHED IN SIDE
		N18W09.11	I	Olivella	DAM A	B	W		G	N	N	N	
		N26W10.2	C	Olivella	DAM A	B	W		G	E	N	N	
		N26W10.4	F	Olivella	UNK	UNK	UNK		UNK	C	N	N	ONLY POSTERIOR END REMAINING
		N26W11.4	C	Olivella	DAM A	UN	--		N	E	N	N	
		S03W17.2	C	Olivella		UN	W	N	N	UnM	N	N	
		S05W14.1	I	Olivella		B	W	N	N	C	N	N	
		S08W06.19	C	Olivella	DAM A	B	W		G	C	G	N	
		S09W01.49	C	Olivella	DAM A	B	W		G	N	N	N	
		S11W03.16	C	Olivella	DAM A	B	W		I	N	N	N	
		N18W03.15	C	Olivella	DAM A	B	W		G	N	N	N	
		N18W07.14	C	Olivella	DAM A	B	BA		GG	N	PP	N	
R03		R03.6	I	Olivella		B			G?	C	N	N	
		S08W04.1	C	Olivella	DAM A	B	W		G	N	P	N	
		S11E03.29	I	Olivella	DAM A	UNK	W		U	C	N	N	APEX END BROKEN OFF
		S11E03.37	C	Olivella	DAM A	B	BA		GG	N	P	N	
		S11E08.26	C	Olivella	DAM A	B	BA		GG	C	N	N	
		S11E08.27	C	Olivella	DAM A	B	W		G	N	N	N	
		S11W03.17	C	Olivella	DAM A	B	W		G	C	N	N	
		S11W03.18	C	Olivella	DAM A	B	W		I	C	L	N	

		N06W16.10	C	Olivella		B	W	O	G	N	N	N	
		N06W18.28	C	Olivella		B	W	O	G	N	B	N	
R33		N12E03.5	C	Olivella	DAM A	B	W		G	E	U	N	HEAVILY ENCRUSTED
		N12W14.13	I	Olivella		B			G	SS	N	N	
		N18W01.8	C	Olivella	DAM A	B	W		G	N	N	N	
		N18W04.10	I	Olivella	DAM A	B	BA		GG	N	P	N	
		N26W10.5	C	Olivella	DAM A	B	BA		GG	N	N	N	
		N26W11.7	C	Olivella	DAM A	UN	--		N	N	N	N	
		S11E03.32	I	Olivella	DAM A	UNK	W		U	C	N	N	APEX END BROKEN OFF
		S11E08.7	C	Olivella		B	W	N	G	C	N	N	
		S11E08.8	I	Olivella		B	W	N	G	C	N	N	
		S11E08.9	C	Olivella		B	W	N	P	C	N	N	
		S11W02.4	C	Olivella		B	W	N	G	C	U	N	
R13		R13.23	C	Olivella		B	BA		G	N	B	N	BOTH ENDS GROUND SMOOTH
		N06W18.5	I	Olivella		B	W	I	U	SS	N	N	
		N06W18.6	C	Olivella		B	W	O	G	N	N	N	
		N06W19.3	C	Olivella		B	W	O	I	N	C	N	
		N10W12.8	C	Olivella	DAM A	B	W		G	E	N	N	
		N12E03.6	C	Olivella	DAM A	B	TR		GG	N	U	N	
		N18W03.12	C	Olivella	DAM A	B	W		G	C	N	N	
		N18W07.19	C	Olivella	DAM A	B	W		G	N	P	N	
TR A6		R43.14	C	Olivella		B	BA		G	N	N	N	
		S09W07.16	C	Olivella	DAM A	B	BA		GG	N	U	N	
		S09W09.12	C	Olivella	DAM A	B	W		G	N	P	N	
		S11E03.15	C	Olivella	DAM A	B	W		G	N	B	N	

		S11E03.17	C	Olivella	DAM A	B	TR		GG	C	N	N	
		S11E06.6	C	Olivella		B	B	N	G	E	N	N	
		S11E13.13	C	Olivella	DAM A	B*	W		GG C	N	N	*	SMALLHOLE DRILLED/ABRADED IN SPIRE
		N18W03.18	C	Olivella	DAM A	B	W		G	N	N	N	
		S11E14.22	C	Olivella	DAM A	B	W		GG	N	P	N	PORTION OF LOWER LIP REMOVED
		N06W13.2	F	Olivella		B	W	O	G	N	N	N	
		N06W16.8	C	Olivella		B	W	O	G	C	U	N	
		N08W15.11	C	Olivella		B	W	N	G	N	N	N	
		N08W17.7	C	Olivella	DAM A	B	W		G	N	AP	N	
		N18W01.11	I	Olivella	DAM A	UNK	W		U	N	N	N	APEX BROKEN OFF
		N18W03.17	C	Olivella	DAM A	B	W		G	N	N	N	
		S11E03.18	C	Olivella	DAM A	B	BA		GG	NN	P	N	
		S11E14.23	C	Olivella	DAM A	B	W		G	N	PP	N	
		N18W03.11	C	Olivella	DAM A	B	W		G	E	N	N	
		N18W03.21	C	Olivella	DAM A	B	W		G	N	N	N	
		N18W03.29	C	Olivella	DAM A	B	W		G	N	N	N	
		N06W15.14	C	Olivella		B	W	O	G	BU	B	N	POSS. PAINT W/DESIGN
		N06W17.18	C	Olivella		B	W	O	I	N	B	N	
		N06W17.19	I	Olivella		B	W	O	U	W	N	N	
		N18W02.6	C	Olivella	DAM A	B	W		G	E	N	N	
		N18W03.13	C	Olivella	DAM A	B	W		G	N	N	N	
		S09W04.1	I	Olivella		B	W	N	G	SS	N	N	
		S09W04.2	C	Olivella		B	B		G	E	UNK	N	

		S09W07.15	C	Olivella	DAMA	UN	--		N	N	N	N	
		S09W20.4	C	Olivella		B			G	E	N	N	
		S11E03.13	UNK	Olivella	UNK	B	W		G	E	N	N	SHELL IS SHATTERED
		S11E08.11	C	Olivella		B	BA	N	G	N	L	N	
		S11E15.25	C	Olivella	DAMA	B	W		G	N	N	N	
		S11W03.4	C	Olivella		B	W	N	G	C	N	N	
		N06W17.35	I	Olivella		B	W	N	G	C	C	N	
		N18W02.7	I	Olivella	DAMA	B	BA		GG	N	P	N	
		N18W04.3	I	Olivella	DAMA	B	W		G	E	U	N	
		N18W06.34	I	Olivella		B	W	O	N	N	C	N	
		S06W13.1	C	Olivella		B	BA	N	G	SS	N	N	S6313.1
		S11E04.12	C	Olivella	DAMA	B	BA		GG	N	N	N	
		N06W17.28	C	Olivella		B	W	N	G	B	U	N	
		N06W17.36	C	Olivella		B	W	N	G	N	S	N	
		N06W17.38	C	Olivella		B	W	O	G	N	A	N	
		N18W06.24	C	Olivella	DAMA	B	W		G	N	N	N	
		S11E02.9	C	Olivella	DAMA	B	W		G	N	P	N	HEAVILY POLISHED
		S13E03.19	F	Olivella	UNK	B	W		G	C	N	N	
B204		B204.6	C	Olivella	UNK	N	B	N/A	G	N	UNK	N	200 BEAD NECKLACE
E.OF PB	SURF.	Gen.124	C	Olivella		B	BA	N	G	N	A	N	
		N03W16.1	C	Olivella		B	W	N	G	C	N	N	
RM11/41	Wall Fall	N07W05.5	I	Olivella		B			G	C	N	N	
	SLOUGH	N12E14.10	C	Olivella		B	W	O	G	N	B	N	
	SCREEN	N18E17.3	C	Olivella		B	BA	O	G	C	N	N	
N.CEM.	SURF.	N19W02.1	C	Olivella		B	W	O	G	SS	B	N	

	FF	Pbl02.R03.6	C	Olivella		B	W	N	G	C	N	N	
PH16		PH16.7	C	Olivella		P			P	SS	N	N	CRYSTAL STUCK UNDER OUTER LIP
R01	CLN.U P	R01.2	I	Olivella		B	W	O	U	E	U	N	
R01	FILL	R01.7	I	Olivella		B	W	O	G	C	B	U	
R02	NE COR.	R02.14	I	Olivella		B	W	O	U		N	N	
	FF	R02.73	I	Olivella		UNK		N	N	E	N	N	
		R04.3	C	Olivella		B	W	N	G	C	N	N	
	WF	R11.14	I	Olivella		B	BA	N	C	N	N	N	R11.14
WS	FILL	R13.24	C	Olivella		B	BA	O	N	N	N	N	
R28	FLR.F L.	R28.11	I	Olivella		B	W	O	U	C	N	N	
R28	FLOO R	R28.12	I	Olivella		B	W	O	U	E	UNK	N	
	Fl	R28.17	C	Olivella		B	W	N	G	E	N	N	
R29	WF	R29.34	I	Olivella	DAM A	B	W		G	N	N	N	S.1/2 OF W. WALL
R29		R29.75	C	Olivella		B			G	SS	N	N	
	FILL	R34.1	I	Olivella		B			G	SS	N	N	
	FILL	R34.3	C	Olivella		B	BA	BA	G	SS	N	N	
	FILL	R34.4	I	Olivella		B			G	SS	N	N	
	FILL	R34.5	I	Olivella		B			G	SS	N	N	
	FILL	R34.6A	I	Olivella		B	BA	BA	G	C	N	N	
	FILL	R34.6B	I	Olivella		B			G	C	N	N	
	FILL	R34.7	C	Olivella		B			G	C	N	N	
R34	FILL	R34.8	C	Olivella		B	BA	BA	G	SS	N	N	
R39	FF	R39.55	C	Olivella	DAM A	B	W		G	C	N	N	
R41	FILL	R41.14	C	Olivella		B	W	O	G	E	N	N	
	WF,RF	R42.34	I	Olivella		B			G	C	N	N	
TR A	FILL	R43.19	I	Olivella		B			G	C	N	N	
TR A	FILL	R43.21	I	Olivella		B			G	SS	N	N	

TR A	FILL	R43.22	I	Olivella		B			G	SS	N	N	
		S13E12.2	I	Olivella		B	W	N	U	C	N	N	
		SQ16.2	C	Olivella		B	W	O	G	E	B	N	
B204		B204.6	C	Olivella	UNK	N	TR	N/A	G	N	UNK	N	200 BEAD NECKLACE
B242		B242.1	C	Olivella		B	W	N	G	E	AP, A		
B242		B242.2	C	Olivella		B	BA	N	G	C	AP, A		
		N08E01.2	I	Olivella	DAM A	UNK	W		U	C	U	N	APEX BROKEN OFF
PH11	FILL	PH11.2	F	P		P	W	SR	G	B	P	N	
TM01		TM1.1	C	P		P	W	N	B	UNK	UNK	N	ARCH. DISPLAY CASE
	WS	R02.33	I	P		UNK		F	N	SS	N	N	
K 1	FILL	S09W01.26	C	P	VOG DESI	P	C	F	B	N	N	N	
		N26W10.1	F	P		UNK	--	I	N	C	E	UN K	
		S09W02.10	F	P		UNK	--	F	N	C	N	N	
		S11W02.40	F	P		UNK	U	I	N	N	N	N	
		N06W15.13	I	P	VOG DESI	UNK	U	I	N	E	N	N	
		N18W07.11	F	P		UNK	--	SQ	N	B	N	N	
		S09E01.1	F	P	VOG DESI	UNK	U	F	N	N	N	N	
		S11E02.18	U	P		UNK	U	*	N	C	N	N	J SHAPE
		S11E11.18	F	P	VOG DESI	UNK	U	I	N	N	N	N	
		N06W06.8	C	P		P	C	SR	B	B	N	N	
		S08W08.6	F	P		UNK	--	SQ	N	E	N	N	
		S11E03.39	F	P		UNK	--	F	N	C	N	N	
		S11E04.5	F	P		UNK	--	L	N	C	N	N	
		S11E11.17	F	P	VOG DESI	UN	U	F	N	W	N	N	
		N14E01.8	F	P		UNK	-	SSQ	N	E	E	UN K	
K 1	FILL	K1.40	F	P		UNK	--	R	N	C	N	N	

K 1	FILL	K1.45	F	P		UNK	--	R	N	C	N	N	
		S08W07.9	C	P		P	BI	I	N	N	N	N	
		S11E15.9	F	P	Vogd esi	UT	S	L	N	B	E	UN K	
		N16E20.2	F	P		UNK		F	N	E	N	N	
B105		B105.16	C	P		P	W	Cir	B, G	C,N,E	S		
B105		B105.17	C	P		P	W	Cir	G, P	C,N,E	S		
B105		B105.18	C	P		P	W	O	G, P	C,N,E	S		
B105		B105.19	C	P		P	W	O	G, P	ER	S		
R41	FILL	R41.21	F	P	CAU RINU S	UNK	U	R	N	SS	N	N	
		N20E09.1	F	P?		UNK		I	N	SS	N	N	
		S11E16.15	C	PYRENE	MAJO R	B	W	O	G	N	N	N	
R02	CLNU P	R02.13	C	PYRENE	JUVE NILE	B	W	O	N	C	N	N	
R29	FLR FILL	R29.6	C	PYRENE	MAJO R	M	W	O	G	E	N	N	WAND TIP?
		S13E03.3	C	RUMINA		B	W	N	G	B	N	N	
		N08W04.3	C	S		B	D	CIR	C	SS	N	N	PINK, TAPERED
	R33 E.TR	N12E04.12	C	S		P		O	B	C	N	N	
TR1		R04.32	F	S		B	D	CIR	G	N	U	N	
	WF	R04.4	I	S		B	Bilobe	SR	B	E	P	N	
		N18W06.7	C	S (?)		O	BILOB E		C	SS	N	N	
		S07W17.2	I	S (?)		B	*	R	P	N	N	N	S7W17.2 Side view wedge shaped - broken at end of perforation
		N17E07.1	C	S (?)		B		BILO BE	C	C	N	N	
		Gen.131	C	S (?)		B	BI	BI	D	C	N	N	
		N06W16.33	I	S/C		B	U	I	C	C	O	N	
		N12E08.1	C	S/C		B	U	O	B	N	P	N	

		N18W02.8	C	S/C		P	CL	L	B	N	N	N	
		N18E20.5	I	T		P	W	N	C	UnM	N	N	
		N18W03.16	C	T		P	W		P		N	N	
		N20E07.6	C	T		P	W	N	C	C	N	N	
		S11E13.11	C	T		P	W		P	N	P	N	
K 1	FILL	K1.29	I	T		P	W		N	C	N	N	
K 1	FILL	K1.30	I	T		P	W		P		N	N	
K 1	FILL	K1.35	I	T		P	W		N	N	N	N	
PIT 17	FILL	PIT17.2	I	T		P	W		P	N	N	N	
		N18E15.6	C	T		UN	W	TU	U	C	N	N	
		N08W12.4	C	T		UN	W		N	C	N	N	
		N18E19.7	I	T		UNK	W	N	N	C	N	N	POSSIBLE PENDANT
		S08W07.22	F	T		P			UNK	SS	N	N	
		S09W07.22	F	T		P	W		U		N	N	
K 1	FILL	K1.34	I	T		P	W		N		N	N	
		N06W16.19	I	T		P	W	TU	U	C	N	N	
		N06W04.1	F	T		UN	W		U				N. OF R17 N. WALL, ON LOAN
		N06W06.9	C	T	NOD	P	W		C	C	N	N	
	FILL	N09W03.8	C	T		P	W		P		N	N	
R01	CLNUP	R01.1	F	T		UNK	U		N	C	N	N	
R27	FILL	R29.38	C	T		P	W		G	C	N	N	WALL FILL ABOVE BENCH
R41	FILL	R41.19	I	TRACHY		UNK	U	L	N	SS	N	N	
	SURFACE	S08E11.1	O	TRACHY		UNK	U	I	N	N	N	N	
		S07W14.14	F	TRIVIA		UNK			N	C	N	N	2 PIECES
		S09W04.17	I	TRIVIA	RADIANS	UNK	U	O	N	N	N	N	
TR1		R04.8	C	TRIVIA	CALIF.	B	W	N	P/P	SS	N	N	R4.8
		N15E14.2	F	UB		UNK	U	I	N	C	N	N	

		N18E14.2	F	UB		UNK	U	R	N	F	N	N	
		S13E06.7	F	UB		UT	U	T	N	F	M	N	POSS. SCOOP
		N08W02.24	F	UB		UNK	U	R	N	E	N	N	
PH11	FILL	PH11.6	F	UB		UNK	U	T	N	C	N	N	
		N18E16.9	F	UB		UNK		I	N	C	N	N	
R37		R37.92	F	UB		UNK	U	L	N	C	N	N	
		S11E08.32	F	UB		UNK	U	I	N	C	N	N	
		N08W17.10	F	UB		UNK	U	F	N	C	M	N	
		N18W07.20	F	UB		UNK	U	I	N	C	N	N	BROKEN IN 2 PIECES
		N18W03.20	C	UB		B	D	CIR	G	BURNT	N	N	3 BEADS
		N06W18.18	F	UB		UNK	U	SR	N	C	N	N	
		N06W14.25	F	UB		UNK	U	I	N	C	N	N	
	SURF	N06W13.1	C	UB		B	D	CIR	C	BURNT	O	N	
R02	FLR.FL.	R02.11	I	UB		P	C	F	B	E	N	N	
N.WALL	WF	R11.15	F	UB		D	U	I	N	C	N		R11.15
R17	FLR.	R17.4	C	UB		B	D	CIR	G	C	N	N	
		S06W12.1	I	UB		UNK	U	I	N	C		N	S6W12.1 2 Pcs. unworked ? are they same shell?
		S09W03.2	C	UB		B	D	CIR	G	C	N	N	
	SURFACE	Gen.110	F	UNK		UNK*		R	I	N	N	U	PROV.=4M EAST OF R24; PREV. ID WAS ABALONE
Unknown		Gen.120	I	UNK		U	NEEDLE	SQ	N	C	N	Y	MOST LIKELY MADE FROM BROKEN BRACELET
R17	FILL	R17.9	F	UNK		BR		O	N	C	N	N	
R37	WF	R37.37	F	UNK		BR		R	N	C	N	Y	GROUND ON ONE END
		N10W12.10	F	UNK		UNK		I	N		U	U	2 small, fragile pieces
		N18W11.16	F	UNK		BR		T	N	C	N	N	

K 1	FILL	K1.56	F	UNK		R		T	N	N	N	N	
PBL1 R1		Pbl01.R01.47	C	UNK		B		CIR	C	SS	N	N	
Pbl2 R01	FILL	Pbl02.R01.49	F	UNK		BR*		CON V	N	C	N	N	POSSIBLE PENDANT OR EARRING
		S11E03.23	F	UNK		BR		R	N	N	N	N	
		S13E02.18	F	UNK		BR		SSQ	N	C	N	N	
		N08E19.9	C	UNK		B	D	CIR	D	SS	N	N	
K 1	FILL	K1.23	F	UNK		BR		SSQ	N	N	B	N	
K 1	FILL	K1.58	F	UNK		BR	INC	T	N	E	N	N	HAS AN "X" INCISED ON SURFACE
		N11W02.28	F	UNK		BR		SSQ	N	C	N	N	
		S08E01.6	F	UNK		BR		SSQ	N	N	B	N	
		N18W06.1	F	UNK		UNK		T	C	E	N	N	
		S08W07.20	I	UNK		U	NEED LE	O	B	C	N	Y	MADE FROM A BROKEN BRACELET
		S09W09.15	F	UNK		BR		SQ	N	C	N	N	
		S11E07.39	F	UNK		BR		T	N	C	N	N	
R41	FILL	R41.15	F	UNK		B	D	CIR	U	C	U	U	4 PIECES-FRAGILE
		N10W12.16	F	UNK		UNK		TRA P	N	SS	N	N	
		N13E19.1	F	UNK		P		I	C	C	N	N	NW 1/4
		N14E11.1	F	UNK		R		R	N	C	N	N	
		N18W07.12	F	UNK		BR		O	N	C	N	Y	GROOVED AT ONE END
PH18	FILL?	PH18.3	F	UNK		U	AWL	ST	N	C	N	Y	MADE FROM BROKEN BRACELET/NOTE DEEP GROOVES ON INTERIOR
		S07W14.6	C	UNK		B		CIR	C	C	N	N	
		S11E02.31	F	UNK		BR		O	N	C	N	P	POSSIBLE GRINDING ON ONE END

		S09W09.5	F	UNK		BR		SQ	N	N	N	N	
		N08W02.2	F	UNK		BR		O	N	C	N	N	
		N08W14.9	F	UNK		BR		O	N	N	N	N	
Tr 1		TR1.5	F	UNK		BR		R	N	C	N	N	
K 1	FILL	K1.60	F	UNK		BR		CON	N	E	N	N	
R37		R37.36	F	UNK		BR		CIR	N	C	N	N	
R39		R39.53	F	UNK		BR	INC*	R	N	C	N	N	POSSIBLY INCISED
R39		R39.54	F	UNK		BR		ST	N	C	N	N	
R39		R39.56	F	UNK		P OR BR	INC	R	N	C	N	N	MOST LIKELY A PENDANT
		S13W04.2	F's	UNK		BR		O	N	C	N	N	TWO PIECES
		N08W03.22	F	UNK		UNK	U	I	N	C	N	N	SHELL TOO SMALL TO IDENTIFY
		N18W03.22	F	UNK		UNK			N	C	N	N	
		S11E08.24	F	UNK		R		R	N	N	N	N	
		S11W02.29	F	UNK		BR		SQ	N	N	N	N	
K 1		S11W01.20	F	UNK	UNK	B	UNK		G	C	N	N	ONLY A PORTION OF SHOULDER REMAINING
		S11W06.17	F	UNK		BR		O	N	N	N	N	
PH15& 16	FILL	PH15.4	F	UNK		BR		CON	N	E	N	Y	ONE END NOTCHED
PH17	FF	PH17.8	F	UNK		UNK			N	SS	N	N	TINY FRAGMENTS
R11		R11.1	I	UNK		U	NEED LE	T	N	C	N	Y	PROV=W. WALL INTERIOR: MADE FROM BROKEN BRACELET
	FILL	R29.30	C	UNK		B	D	CIR	C	C	N	N	
R29	FLR.F L.	R29.41A	C	UNK		B	D	CIR	G	C			
R29	FLR.F L.	R29.41B	C	UNK		B	D	CIR	G	C			
R29	FLR.F L.	R29.41C	C	UNK		B	D	CIR	G	C			
R29	FLR.F L.	R29.41D	C	UNK		B	D	CIR	G	C			

R29 S.BNCH	SLOUGH	R29.61	F	UNK		UNK	U	I	N	E	N	N	
R29	FLR.	R29.62	C	UNK		B	D	CIR	C	N	N	N	
R42	FF	R42.19	F	UNK		BR		O	N	C	N	N	PROV=BASE OF S WALL; INCISED ON INNER PORTION?
		S11W16.24	F	UNK*		UNK		CON	N	C	N	N	POSSIBLY CONUS
		S11W16.26	F	UNK*		UNK		CON	N	N	N	N	POSSIBLY CONUS
Pbl2 R01		Pbl02.R01.20	F	UNK*		BR		SQ	N	BURNT	N	N	COULD BE BONE
		S09W09.16	C	UU		B	W	O	G	N	N	N	
R02	FLR.FL.	R02.12	F	UU		UNK	U	I	N	E	N	N	
		S08W08.1	I			UNK	UNK		G	N	C	N	POSSIBLE BEAD
		Gen.182	I			P		TR	C	E	N	N	
R29	WF	R29.17	F		C	T	W	C	N	C	U	N	

Shell Spreadsheet Codes

A. Cat #

a. Gen: Surface collection/General
b. K: Kiva
c. N#E#, N#W#, S#E#, S#W# (Square #)
d. Pbl#.R#: Pueblo # Room #
e. PH: Pithouse
f. PIT: Pit
g. R: Room
h. TM: Trash Mound
i. TR: Trench

B. Provenience

a. N#E#, N#W#, S#E#, S#W# (Square #)
b. Room #, Kiva #, etc.

C. ½ or ¼ - Half or Quarter of the room

D. Level #

a. PGS: Present ground Surface
b. BPGS: below present ground surface
c. CMBD: centimeters below datum
d. MBD: meters below datum

E. Level Depth (cm)

a. STR: Stratum

F. Feature

a. PH: Pithouse
b. K: Kiva
c. B: Burial
d. BP: Burial Pit
e. Pbl: Pueblo
f. Tr: Trench
g. TM: Trash Mound
h. PB: Peter burial

G. Context

a. Surf.: Surface
b. Gen./GF: General Fill/Fill
c. Wl.Fl/W.Fall: Wall fall
d. Sl/WS: Wall Slough
e. FF: Floor Fill
f. Subfl: Subfloor
g. PF: Pit Fill

H. Complete?

a. F: Fragment
b. I: Incomplete
c. C: Complete
d. UNK: Unknown

I. Genus

a. AB: *Abalone*
b. CE: *Cerithidea*
c. C: *Conus*
d. COC: *Cockle*
e. FWC: Fresh Water Clam
f. G: *Glycymeris*
g. L: *Laevicardium*
h. N: *Nassarium*
i. NE: *Nerita*
j. O: *Oliva*
k. OL: *Olivella*
l. P: *Pecten*
m. PY: *Pyrene*
n. S: *Spondylus*
o. T: *Turritella*
p. UB: Unknown Bivalve
q. UU: Unknown Univalve
r. *Dentalium*

J. Species

a. Subob: subobsoleta
b. Dama: dama
c. ALB: albonodosa
d. SP: spadicea
e. G: glycymeris
f. Elatum: elatum
g. NOD: nodulosa
h. Juv: juvenile
i. Vogdesi: vogdesi
j. Luteo: luteonigra
k. Comp: comptus
l. Scabri: scabricosta
m. Cracher: cracherodii
n. Calif: californiana
o. Nus: nux

K. Measurements

a. Length
b. Width

c. Thickness
d. Diameter

L. Class
a. B: Bead
b. Br: Bracelet
c. P: Pendant
d. R: Ring
e. T: Tinkler
f. U/Unk: Unknown
g. UT: Utility
h. D: Debitage
i. UN: Unworked

M. Type
a. A: Awl
b. BA/BB: Barrel (bead)
c. BI: Bilobe
d. D: Disc
e. INC: Incised
f. N: Needle
g. S: Scraper
h. C: Cut
i. CL: Claw
j. CA: Cap
k. W: Whole Shell
l. U/Unk: Unknown
m. Tubular
n. TR: Truncated
o. I: Irregular

N. Shape
a. B/BA: Barrel
b. CIR: Circular
c. CON: Convex
d. C: Conical
e. COL: Columella
f. F: Fan
g. I: Irregular
h. N: Natural
i. O: Oval
j. R: Rectangular
k. Sq: Square
l. SR: Sub-rectangular
m. SSQ: Sub-square
n. Tr/T: Triangular

o. TU: Turriform
p. Fig: Figurine
q. ST: Sub-triangular
r. “S” : (Line 540) Shaped like the letter S
s. Trap: trapezoid
t. Pent: Pentagon

O. Perforations- Holes

a. A: Abraded
b. B: Bi-conical
c. C: Conical
d. D: drilled
e. G: Ground
f. I: Incised
g. N: None
h. P: Punched
i. U: Unknown

P. Condition

a. B/BU: Burnt
b. BE: Beachworn
c. C: Calcined
d. E/EN: Encrusted
e. ER: Eroded
f. N: Natural Color
g. SS: Soil Stained
h. W: Worm holes
i. F: Fire Smoked
j. NAC/NA: nacreous (oh, shiny!)
k. UNK/U: unknown
l. UnM: Unmarred

Q. Wear/Polish

a. AP: Aperture
b. A: Apex
c. B: Body
d. C: Canal
e. E: Edge
f. L: Lip
g. N: None
h. O: Overall
i. P: Perforation
j. S: Shoulder
k. Margin
l. UNK/U: Unknown
m. EXT: Exterior

R. Reworked? Has the shell been broken and reused/altered?

a. Y: Yes

b. N: No

APPENDIX C
FULL SHELL DATABASE OF WINONA VILLAGE FROM MURPHY (2000)

Site	Catalog #	Description	Locality	Condition	Count	Genus and species	Comment
NA2131	2131.A1.7	Bracelet	Floor	Fragment	1	Glycymeris	
NA2131	2131.A1.11	Spire cut tinkler	10 cm above floor	Whole	1	Conus	perforated on outer lip at aperature
NA2131	2131.A1.17	Bracelet	Cist, below floor	Fragment	1	Glycymeris	perforated off center on bracelet body
NA2131	2131.A1.18	Spire cut bead	Cist, below floor	Whole	1	Olivella	
NA2131	2131.AR2.2	Pendant	Fill	Whole	1	Glycymeris	whole shell, small glycymeris, perforated through umbo
NA2131	2131.D.2	Bracelet	Unknown	Fragment	1	Glycymeris	umbo present, not perforated
NA2131	2131.J.3	Unworked	Below surface	Fragment	1	Ostrea iridescens	
NA2131	2131.X.18	Bracelet	Section B-8	Fragment	1	Glycymeris	
NA2131	2131.X.21	Bracelet	Trench A	Fragment	1	Glycymeris	
NA2131	2131.X.22	Bracelet/pendant	Trench A	Fragment	1	Glycymeris	perforated umbo
NA2131	2131.X.27	Bracelet/pendant	Section B-6	Fragment	1	Glycymeris	perforated umbo. Same as catalog # B6.27
NA2131	2131.X.28	Bracelet	Section B-6	Fragment	1	Glycymeris	Same as catalog # B6.28
NA2131	2131.X.30	Bracelet	Section B-6/B7	Fragment	3	Glycymeris	Same as B.6 & B7.30
NA2131	2131.X.59	Spire cut tinkler	Surface	Whole	1	Conus	perforated and fractured through outer lip at aperature
NA2131	2131.X.60	Pendant	Trench B & C	Fragment	1	Pecten	1/2 of circular pendant, repeating serpent motif
NA2131	2131.X.61	Bracelet	Trench B & C	Fragment	1	Glycymeris	
NA2131	2131.X.61	Worked	Trench B & C	Fragment	1	Pecten	ribs smoothed, ground edges, edges snapped
NA2131	2131.X.62	Bracelet	Trench D	Fragment	4	Glycymeris	
NA2131	2131.X.62	Bracelet/pendant	Trench D	Fragment	1	Glycymeris	perforated umbo
NA2131	2131.X.62	Snail	Trench D	Fragment	4	fresh water	
NA2131	2131.X.62	Worked	Trench D	Fragment	1	Laevicardium elatum	umbo present, edges snapped
NA2131	2131.X.66	Bracelet	Trench C & D	Fragment	1	Glycymeris	

NA2131	2131.X.75	Bracelet	Section 4-A	Fragment	1	Glycymeris	
NA2131	2131.X.77	Worked	Section 8A	Fragment	1	Laevicardium elatum	cut, umbo present
NA2133	2133.1	Bracelet	Surface	Fragment	4	Glycymeris	
NA2133	2133.1	Unworked	Surface	Fragment	1	Laevicardium elatum	umbo present, not perforated
NA2133	2133.A.43a	Bracelet	Room fill	Fragment	1	Glycymeris	
NA2133	2133.A.43b	Ring	Room fill	Fragment	1	unidentifiable	
NA2133	2133.C.2	Unworked	Floor	Fragment	1	Ostrea iridescens	
NA2133	2133.C.2	Unworked	Floor	Fragment	2	Ostrea iridescens	
NA2133	2133.C.4	Bracelet incised	Old floor	Fragment	1	Glycymeris	repeating gemoetric, burned
NA2133	2133.C.7	Bracelet	Floor	Fragment	1	Glycymeris	
NA2133	2133.C.13	Bracelet	Floor	Fragment	1	Glycymeris	no catalog card
NA2133	2133.E.4	Bracelet	TT e, surface, Section A	Fragment	1	Glycymeris	
NA2133	2133.E.4	Worked, taper	TT e, surface, Section A	Fragment	1	Glycymeris	one end tapered
NA2133	2133.E.6	Bracelet/pendant	TT e, surface, Section B	Fragment	1	Glycymeris	peforated umbo
NA2133	2133.T.9	Ring	General trash	Whole	1	unidentifiable	very small
NA2133	2133.T.9	Bracelet	General trash	Fragment	1	Glycymeris	
NA2133	2133.T.9	Unworked	General trash	Fragment	1	Argopecten circularis	
NA2133	2133.T.10	Bilobed bead	General trash	Whole	1	unidentifiable	
NA2133	2133.T.10	Spire cut bead	General trash	Whole	5	Olivella	
NA2133	2133.T.10	Disk bead	General trash	Whole	12	unidentifiable	
NA2133	2133.T.17	Bracelet incised	Section 7	Fragment	1	Glycymeris	zig-zag incising
NA2133	2133.T.22	Bracelet	Section 7	Fragment	3	Glycymeris	
NA2133	2133.T.24	Disk bead	General trash	Whole	1	unidentifiable	
NA2133	2133.T.26	Bracelet	General trash	Fragment	1	Glycymeris	
NA2133	2133.T.26	Bracelet/pendant	General trash	Fragment	1	Glycymeris	
NA2133	2133.T.26	Bracelet	General trash	Fragment	2	Glycymeris	slight carved design
NA2133	2133.T.30	Bracelet	Section 6	Fragment	4	Glycymeris	
NA2133	2133.T.31	Unworked	Section 6	Fragment	1	Ostrea iridescens	
NA2133	2133.T.39	Bead/pendant	Section 3	Fragment	1	Dentalium	deteriorated, chalky

NA2133	2133.T.39	Spire cut bead	Section 3	Whole	1	Olivella	
NA2133	2133.T.39	Barrel cut bead	Section 3	Whole	1	Olivella	
NA2133	2133.T.39	Bilobed bead	Section 3	Whole	2	unidentifiable	
NA2133	2133.T.39	Disk bead	Section 3	Whole	2	unidentifiable	
NA2133	2133.T.42	Pendant	Section 8	Whole	1	Glycymeris	carved, drilled, bired
NA2133	2133.T.45	Bracelet	Section 7	Fragment	1	Glycymeris	
NA2133	2133.T.49	Bracelet	Section 5	Fragment	1	Glycymeris	slight geometric incising
NA2133	2133.T.53	Bracelet	General trash	Fragment	1	Glycymeris	slight geometric incising
NA2133	2133.T.55	Disk bead	General	Whole	1	unidentifiable	
NA2133	2133.T.55	Spire cut olivella	General	Whole	1	Olivella	
NA2133	2133.T.56	Bracelet	General	Fragment	2	Glycymeris	
NA2133	2133.T.81c	spire cut bead	Section 8	Fragment	1	Olivella	very disintegrated
NA2133	2133.T.81a	Bilobed bead	Section 8	Whole	1	unidentifiable	
NA2133	2133.T.81d	Disk bead	Section 8	Whole	2	unidentifiable	
NA2133	2133.T.82	Bracelet	Section 8	Fragment	3	Glycymeris	
NA2133	2133.T.86	Disk bead	Section 9	Whole	2	unidentifiable	stone, shell
NA2133	2133.T.86	Bracelet	Section 9	Fragment	1	Glycymeris	
NA2133	2133.T.86	Pendant	Section 9	Fragment	1	Chione tumens	drilled into umbo
NA2133	2133.T.96	Unworked	Section 6	Fragment	4	Ostrea iridescens	
NA2133	2133.T.100	Disk bead	Section A	Whole	1	unidentifiable	
NA2133	2133.T.103	Bracelet	General trash	Fragment	2	Glycymeris	
NA2133	2133.T.106	Bracelet/pendant	Section B	Fragment	1	Glycymeris	perforated umbo
NA2133	2133.T.107	Spire cut bead	Section X1	Whole	1	Olivella	
NA2133	2133.T.115	Snail	Section Y2	Fragment	1	fresh water	
NA2133	2133.T.115	Snail	Section Y2	Whole	1	fresh water	
NA2133	2133.T.122	Spire cut bead	Section W4	Whole	2	Olivella	
NA2133	2133.T.122	Disk bead	Section W4	Whole	1	unidentifiable	
NA2133	2133.T.127	Bracelet	Section V2	Fragment	1	Glycymeris	
NA2133	2133.T.128	Bracelet	Section V3	Fragment	1	Glycymeris	
NA2133	2133.T.129	Bracelet	Section V3	Fragment	1	Glycymeris	

NA2133	2133.T.131	Bracelet/pendant	Section V4	Fragment	1	Glycymeris	perforated umbo
NA2133	2133.T.134	Bracelet	Section V5	Fragment	1	Glycymeris	
NA2133	2133.T.137	Bracelet	Section V6	Fragment	1	Glycymeris	
NA2133	2133.T.141	Bilobed bead	Section X3	Whole	1	unidentifiable	
NA2133	2133.T.143	Bracelet	Section X3	Fragment	1	Glycymeris	
NA2133	2133.T.143	Unworked	Section X3	Fragment	1	Laevicardium elatum	
NA2133	2133.T.144	Tabular bead	Section X4	Whole	1	Pecten	
NA2133	2133.T.152	worked	Section Y4	Fragment	1	Glycymeris	carved, zoomorphic
NA2133	2133.T.157	Bilobed bead	Section V6	Whole	1	Pecten	
NA2133	2133.T.164	Bracelet/pendant	Section 4	Fragment	1	Glycymeris	perforated umbo
NA2133	2133.T.173	Bracelet	Section A	Fragment	1	Glycymeris	
NA2133	2133.T	Bracelet	Surface	Fragment	1	Glycymeris	
NA2133	2133.T	Bracelet	Section A	Fragment	1	Glycymeris	
NA2133	2133.T	Bracelet/pendant	Section A	Fragment	1	Glycymeris	perforated, carved umbo
NA2134	2134.37	Bracelet	Trash 16De	Fragment	1	Glycymeris	
NA2134	2134.38	Bracelet	Trash	Fragment	1	Glycymeris	
NA2134	2134.4	Snail	Trash	Whole	1	fresh water	
NA2134	2134.46	Ring	Trash 18C e	Fragment	1	Chione	
NA2134	2134.49	Bracelet/pendant	Trash	Fragment	1	Glycymeris	
NA2134	2134.5	Spire cut bead	Trash 19B	Whole	1	Olivella	
NA2134	2134.53	Bracelet	Trash e	Fragment	1	Glycymeris	
NA2134	2134.59	Bracelet	Trash	Fragment	1	Glycymeris	
NA2134	2134.78	Spire cut bead	Trash 17B e	Whole	1	Olivella	
NA2134	2134.A.2	Disk bead	Pithouse	Whole	1	unidentifiable	
NA2134	2134.E	Spire cut bead	Pithouse	Whole	1	Olivella	
NA2134	2134.E	Snail	Pithouse	Fragment	1	fresh water	
NA2134	2134.E.19	Unworked	Fill above floor pithouse	Fragment	1	Ostrea iridescens	
NA2134	2134.E.25	Unworked	Fill above floor pithouse	Fragment	1	Ostrea iridescens	
NA2134	2134.E.26	Bracelet	Fill above floor pithouse	Fragment	1	Glycymeris	

NA2134	2134.T.10	Bracelet	Trash mound	Fragment	1	Glycymeris	
NA2134	2134.T.16	Disk bead	Trash mound	Whole	1	unidentifiable	
NA2134	2134.T.19	Disk bead	Trash mound	Whole	1	unidentifiable	
NA2134	2134.T.19	Spire cut bead	Trash mound	Whole	3	Olivella	
NA2134	2134.T.19	Bracelet/pendant	Trash mound	Fragment	1	Glycymeris	
NA2134	2134.T.20	Spire cut bead	Trash mound	Whole	6	Olivella	
NA2134	2134.T.21	Bracelet/pendant	Trash	Fragment	3	Glycymeris	
NA2134	2134.T.21	Bracelet/pendant	Trash	Fragment	2	Glycymeris	
NA2134	2134.T.21	Bracelet	Trash	Fragment	16	Glycymeris	
NA2134	2134.T.24	Ring	Trash mound	Fragment	1	Chione	
NA2134	2134.T.25	Pendant	Trash mound	Fragment	1	unidentifiable	
NA2134	2134.T.29	Snail	Trash mound	Whole	4	Oreohelix houghi	
NA2134	2134.T.29	Snail	Trash mound	Whole	4	Oreohelix houghi	
NA2134	2134.T.29	Snail	Trash mound	Fragment	1	Oreohelix houghi	
NA2134	2134.T.51	Bracelet/pendant	Trash mound Section 19A	Fragment	1	Glycymeris	
NA2134	2134.T.52	Bracelet	Trash mound	Fragment	1	Glycymeris	
NA2134	2134.T.55	Bracelet	Trash mound	Fragment	1	Glycymeris	
NA2134	2134.T.56	Bracelet	Trash mound	Fragment	1	Glycymeris	
NA2134	2134.T.70	Bracelet	Trash mound Section 18A	Fragment	1	Glycymeris	
NA2134	2134.T.73	Bracelet	Trash mound Section 15A	Fragment	1	Glycymeris	
NA2134	2134.T.77	Bracelet	Trash mound Section 19A	Fragment	1	Glycymeris	
NA2134	2134.T.82	Bracelet	Trash mound Section 14A	Whole	1	Spondylus/Chama	
NA2134	2134.T.84	Bracelet	Trash mound Section 8A	Fragment	1	Glycymeris	
NA2134	2134.T.85	Ring	Trash mound Section 13A	Whole	1	Glycymeris	
NA2134	2134.T.90	Bracelet	Trash mound Section 16A	Fragment	3	Glycymeris	
NA2134	2134.T.94	Bilobed bead	Trash mound Section 10B	Fragment	1	unidentifiable	

NA2134	2134.T.95	Bracelet	Trash mound Section 10B	Fragment	1	Glycymeris	
NA2134	2134.T.101	Spire cut bead	Trash mound Section 16A	Whole	1	Olivella	
NA2134	2134.T.102	Bracelet	Trash mound Section 18A	Fragment	1	Glycymeris	
NA2134	2134.T.104	Bracelet/pendant	Trash mound Section 14A	Fragment	1	Glycymeris	
NA2134	2134.T.105	Disk bead	Trash mound Section 14B	Whole	1	Olivella	
NA2134	2134.T.105	Disk bead	Trash mound Section 14B	Whole	1	unidentifiable	
NA2134	2134.T.105	Spire cut bead	Trash mound Section 14B	Whole	1	Olivella	
NA2134	2134.T.111	Bracelet	Trash mound Section 14B	Fragment	1	Glycymeris	
NA2134	2134.T.111	Bracelet/pendant	Trash mound Section 14B	Fragment	1	Glycymeris	
NA2134	2134.T.117	Spire cut bead	Test trench	Whole	1	Olivella	
NA2134	2134.T.118	Bracelet/pendant	Test trench	Fragment	1	Glycymeris	
NA2134	2134.T.123	Bracelet/pendant	Trench Section 17A	Fragment	1	Glycymeris	
NA2134	2134.T.124a	Pendant	Trench Section 11B	Fragment	1	Turritella luecostoma	
NA2134	2134.T.124b	Bracelet	Trench Section 11B	Fragment	1	Glycymeris	
NA2134	2134.T.128	Spire cut bead	Trench Section 15B	Whole	2	Olivella	
NA2134	2134.T.130	Spire cut bead	Trench Section 16B	Whole	1	Olivella	
NA2134	2134.T.130	Bracelet	Trench Section 16B	Fragment	1	Glycymeris	
NA2134	2134.T.133	Spire cut bead	Trench Section 17B	Whole	1	Olivella	
NA2134	2134.T.133	Bracelet	Trench Section 17B	Fragment	1	Glycymeris	
NA2134	2134.T.133	worked	Trench Section 17B	Fragment	1	Glycymeris	
NA2134	2134.T.136	Spire cut bead	Trench Section 18B	Whole	1	Olivella	
NA2134	2134.T.142	Bracelet	Trench Section 12C	Fragment	1	Glycymeris	
NA2134	2134.T.144	Disk bead	Trench Section 13C	Whole	1	unidentifiable	
NA2134	2134.T.144	Spire cut bead	Trench Section 13C	Whole	1	Olivella	
NA2134	2134.T.146	Spire cut bead	Trench Section 16C	Whole	2	Olivella	
NA2134	2134.T.146	worked	Trench Section 16C	Fragment	1	Pecten vogdesi	

NA2134	2134.T.150	Disk bead	Trench Section 13D	Whole	1	unidentifiable	
NA2134	2134.T.150	Ring	Trench Section 13D	Fragment	1	Chione	
NA2134	2134.T.154	Disk bead	Trench Section 14D	Whole	2	unidentifiable	
NA2134	2134.T.164	Spire cut bead	Trench Section 20A	Whole	2	Olivella	
NA2134	2134.T.164	Disk bead	Trench Section 20A	Whole	1	unidentifiable	
NA2134	2134.T.165	Bracelet	Trench Section 20A	Fragment	2	Glycymeris	
NA2134	2134.T.166	Tessera	Trench Section 21A	Whole	1	Spondylus/Chama	
NA2134	2134.T.167	Disk bead	Trench Section 21A	Whole	2	unidentifiable	
NA2134	2134.T.168	Bracelet	Trench Section 21A	Fragment	1	Glycymeris	
NA2134	2134.T.168	Ring	Trench Section 21A	Fragment	1	Chione/Glycymeris	
NA2134	2134.T.168	Ring	Trench Section 21A	Fragment	1	Glycymeris	
NA2134	2134.T.179	Spire cut bead	Trench Section 23B	Whole	1	Olivella	
NA2134	2134.T.183	Bracelet	Trench Section 14C	Fragment	1	Glycymeris	
NA2134	2134.T.187	Spire cut bead	Trench Section 15C	Whole	1	Olivella	
NA2134	2134.T.194	Spire cut bead	Trench Section 21C	Whole	1	Olivella	
NA2134	2134.T.194	Disk bead	Trench Section 21C	Whole	1	unidentifiable	
NA2134	2134.T.197	Disk bead	Trench Section 15D	Whole	3	unidentifiable	
NA2134	2134.T.197	Bilobed bead	Trench Section 15D	Whole	1	unidentifiable	
NA2134	2134.T.197	Tessera	Trench Section 15D	Whole	1	Spondylus/Chama	
NA2134	2134.T.197	Bracelet	Trench Section 15D	Fragment	1	Glycymeris	
NA2134	2134.T.199	Bracelet	Trench Section 16D	Fragment	2	Glycymeris	
NA2134	2134.T.199	Spire cut bead	Trench Section 16D	Whole	1	Olivella	
NA2134	2134.T.201	Disk bead	Opposite body of Burial 7	Whole	1	unidentifiable	
NA2134	2134.T.204	Spire cut bead	General trench	Whole	8	Olivella	
NA2134	2134.T.204	Bracelet	General trench	Fragment	2	Glycymeris	
NA2134	2134.T.206	Bilobed bead	General trench	Whole	1	unidentifiable	
NA2134	2134.T.206	Spire cut bead	General trench	Whole	4	Olivella	
NA2134	2134.T.207	worked	General trench	Whole	1	Glycymeris	
NA2134	2134.T.208	Bracelet	General trench	Fragment	1	Glycymeris	

NA2134	2134.T.219	Bracelet/pendant	Trash Section 9B	Fragment	1	Glycymeris	
NA2134	2134.T.226	Bilobed bead	General trench	Whole	1	Spondylus/Chama	
NA2134	2134.T.226	Spire cut bead	General trench	Whole	2	Olivella	
NA2134	2134.T.227	Bracelet	General trench	Fragment	2	Glycymeris	
NA2134	2134.T.227	Bracelet/pendant	General trench	Fragment	1	Glycymeris	
NA2134	2134.T.234	Spire cut bead	General trench	Whole	5	Olivella	
NA2134	2134.T.234	Spire cut bead	General trench	Fragment	1	Olivella	
NA2134	2134.T.234	Tabular bead	General trench	Whole	1	unidentifiable	
NA2134	2134.T.236	Bracelet	General trench	Fragment	5	Glycymeris	
NA2134	2134.T.236	Snail	General trench	Whole	1	fresh water	
NA2134	2134.T.251	Spire cut bead	Trash Section 21B	Whole	1	Olivella	
NA2134	2134.XC8.3	Spire cut bead	Cremation	Fragment	18	Olivella	
NA2134	2134.T.C11-12.9	Disk bead	Unknown	Whole	1	unidentifiable	
NA2134	2134.T.C11-12.9	Spire cut bead	Unknown	Whole	1	Olivella	
NA2134	2134.XC9.4	Spire cut bead	Cremation	Fragment	35	Olivella	
NA2134	2134.XC11-12.12	Disk bead	Cremation	Whole	4	unidentifiable	
NA2134	2134.XC11-12.13	Spire cut bead	Cremation	Whole	29	Olivella	
NA2134	2134.XC11-12.14	Bilobed bead	Cremation	Whole	6	unidentifiable	
NA2134	2134.XC11-12.14	Bilobed bead	Cremation	Fragment	20	unidentifiable	
NA2134	2134.XC11-12.14	Bilobed bead	Cremation	Fragment	11	unidentifiable	
NA2134	2134.XC13.10	Spire cut bead	Cremation, 30 cm below surface	Whole	33	Olivella	
NA2134	2134.XC17.2	Spire cut bead	Cremation #17	Whole	7	Olivella	
NA2134	2134.XC20.2	Spire cut bead	Cremation	Fragment	1	Olivella	
NA2134	2134.XC.26	Spire cut bead	Cremation	Whole	1	Olivella	
NA2134	2134.X..62.2	Snail	Cremation	Whole	2	fresh water	
NA2135	2135.C.3	Pendant	Trash fill above floor	Whole	1	Ostrea iridescens	lower 1/2 of zoomorphic, feet and tail of lizard, cut

NA2135	2135.C.13	Bracelet	Trash fill above floor	Fragment	4	Glycymeris	undrilled umbo preseent on one
NA2135	2135.C.103	Ring	Floor	Fragment	1	Chione/Glycymeris	
NA3644	3644B	Snail	Trash	Whole	2	fresh water	perforated on 1st spire, for suspension?
NA3644	3644.B.3	Bracelet	General trash, tr	Fragment	2	Glycymeris	
NA3644	3644.B.3	Bracelet	General trash, tr	Fragment	1	Glycymeris	perforated umbo
NA3644	3644.B.4	Spire cut bead	General trash, tr	Whole	1	Olivella	
NA3644	3644.B.9	Bracelet	Trash	Fragment	1	Glycymeris	
NA3644	3644.B.12	Bracelet	General trash, tr	Fragment	1	Glycymeris	
NA3644	3644.B.22	Bracelet	General trash, tr	Fragment	1	Glycymeris	perforated umbo
NA3644	3644.B.28	Reworked	Section 5	Whole	1	unidentifiable	eccentric/zoomorph, ground, incised
NA3644	3644.B.30	Bracelet	Section 5	Fragment	1	Glycymeris	
NA3644	3644.B.30	Bracelet	Section 5	Fragment	1	Glycymeris	perforated umbo and partial drill 2 cm to right of umbo
NA3644	3644.B.31	Spire cut bead	Section 5	Whole	1	Olivella	
NA3644	3644.B.40	Bracelet	Section 3	Fragment	1	Glycymeris	burned
NA3644	3644.B.47	Bracelet	Section 1	Fragment	1	Glycymeris	
NA3644	3644.B.47	Spire cut bead	Section 1	Whole	1	Olivella	
NA3644	3644.B.52	Bracelet	Section 6	Fragment	1	Glycymeris	
NA3644	3644.B.52	Worked	Section 6	Whole	1	Haliotis	ground margins
NA3644	3644.B.61	Spire cut bead	Section 6	Whole	1	Olivella	
NA3644	3644.B1.11.4	Disk bead	Burial	Whole	2	unidentifiable	same catalog # as BB11.4
NA3644	3644.D.5	Bracelet	General trash	Fragment	1	Glycymeris	perforated umbo
NA3644	3644.D.10	Bracelet	Trash	Fragment	1	Glycymeris	perforated umbo
NA3644	3644.D.14	Bracelet	Section 3	Fragment	1	Glycymeris	
NA3644	3644.D.15	Bilobed bead	Section 3	Whole	1	unidentifiable	
NA3644	3644.D.25	Bracelet	Section 4	Fragment	2	Glycymeris	
NA3644	3644.D.25	Bracelet	Section 4	Fragment	1	Glycymeris	perforated umbo
NA3644	3644.D.26	Spire cut bead	Section 4	Whole	1	Olivella	
NA3644	3644.D.26	Disk bead	Section 4	Whole	1	Spondylus/Chama	

NA3644	3644.D.27	Worked ovoid	Section 4	Whole	1	Glycymeris	bead blank?
NA3644	3644.H.2	Pendant	Pithouse floor	Fragment	1	Glycymeris	zoomorphic, ground margin
NA3644	3644.H.3	Bracelet	Pithouse floor	Fragment	1	Glycymeris	perforated umbo
NA3644	3644.I	Bracelet	Trash	Fragment	1	Glycymeris	
NA3644	3644.I.7	Bracelet	Trash Section 2	Fragment	1	Glycymeris	
NA3644	3664.J.5	Bead/pendant	Pithouse entrance	Whole	1	Turritella gonostoma	perforated at outer lip
NA3644	3664.J.6	Disk bead	Pithouse fill	Whole	1	Spondylus/Chama	red (?)
NA3644	3664.J.8	Bracelet	Pithouse fill	Fragment	1	Glycymeris	perforated umbo
NA3644	3664.L.10	Bracelet	Pithouse fill above floor	Fragment	1	Glycymeris	perforated umbo
NA3644	3664.Q.4	Bracelet	Pithouse fill Room 3	Fragment	1	Glycymeris	
NA3644	3664.?.46	Bracelet	Unknown	Fragment	1	Glycymeris	catalog # illegible

APPENDIX D
FULL SHELL DATABSE OF RIDGE RUIN FROM MURPHY (2000)

Site	Catalog #	Description	Locality	Condition	Count	Genus and species	Comment
NA3680	3690.B2.2	Ring	Burial 2/pithouse	Fragment	1	Glycymeris	ground, immature
NA3680	3690.B2.3	Bracelet/pendant	Burial 2/pithouse	Fragment	1	Glycymeris	perforated umbo
NA3673	3673.T.B1.4	Spire cut bead	Cremation	Fragment	11	Olivella	same as 3673.T.B4?
NA3673	3673.T.68	Bracelet	Hearth	Fragment	1	Glycymeris	Incised
NA3673	3673.T.25	Pendant	Room fill	Whole	1	Glycymeris	cut, incised, zoomorphic-quadraped
NA3673	3673.T.93	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.94	Bracelet/pendant	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.95	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.96	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.97	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.98	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.99	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.100	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.100	Worked	Room fill	Whole	1	Glycymeris	rectangular, ground
NA3673	3673.T.115	Bracelet/pendant	Room fill	Fragment	1	Glycymeris	perforated umbo
NA3673	3673.T.116	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.117	Bracelet/pendant	Room fill	Fragment	1	Glycymeris	perforated umbo
NA3673	3673.T.118	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.119	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.120	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.121	Worked	Room fill	Whole	1	Haliotis rufescens	ID from tag in specimen box
NA3673	3673.T.125	Pendant	Room fill	Whole	1	Argopecten circularis	modified natural perforation bewo umbo, umbo missing
NA3673	3673.T.127	Bead/pendant	Room fill	Whole	1	Spondylus/Cham a	modified natural

NA3673	3673.T.130	Bead/pendant	Room fill	Whole	2	Glycymeris	both perforated into umbo, immature Glycymeris
NA3673	3673.T.131	Bracelet/pendant	Room fill	Fragment	1	Glycymeris	perforated umbo
NA3673	3673.T.137	Spire cut bead	Room fill	Fragment	1	Olivella	
NA3673	3673.T.137	Spire cut bead	Room fill	Fragment	33	Olivella	
NA3673	3673.T.139	Spire cut bead	Room fill	Whole	4	Olivella	three are burned
NA3673	3673.T.140	Disc bead	Room fill	Fragment	1	Spondylus/Chama	ground through one margin
NA3673	3673.T.140	Disc bead	Room fill	Whole	2	Spondylus/Chama	same manufacturing episode as above?
NA3673	3673.T.141	Disc bead	Room fill	Whole	9	unidentifiable	
NA3673	3673.T.142	Bilobed bead	Room fill	Fragment	2	unidentifiable	fractured at perf
NA3673	3673.T.142	Bilobed bead	Room fill	Whole	2	unidentifiable	fractured at perf
NA3673	3673.T.147a	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.147b	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.147c	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.147d	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.147e-f	Bracelet	Room fill	Fragment	1	Glycymeris	e-f can be refitted, same specimen so counted as one
NA3673	3673.T.147g	Bracelet/pendant	Room fill	Fragment	1	Glycymeris	perforated umbo
NA3673	3673.T.153	Pendant	Room fill	Whole	1	Glycymeris	zoomorph
NA3673	3673.T.155	Tessera	Room fill	Whole	2	Glycymeris	nearly square in cross section
NA3673	3673.T.155	Tessera	Room fill	Whole	1	unidentifiable	nearly square in cross section
NA3673	3673.T.187	Spire cut bead	Room fill	Whole	2	Olivella	
NA3673	3673.T.189	Disc bead	Room fill	Whole	2	unidentifiable	
NA3673	3673.T.190	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673.T.194	Tessera	Room fill	Whole	1	Glycymeris	square
NA3673	3673.T.196	Pendant	Room fill	Whole	1	unidentifiable	cut zoomorph avian
NA3673	3673.T.200	Disc bead	Room fill	Fragment	1	unidentifiable	
NA3673	3673T	Bracelet	Room fill	Fragment	1	Glycymeris	
NA3673	3673T	Ring	Room fill	Fragment	1	Glycymeris	immature Glycymeris
NA3673	3673T	Spire cut bead	Room fill	Fragment	1	Olivella	

NA3673	3673T	Spire cut bead	Room fill	Whole	3	Olivella	
NA3673	3673T	Worked	Room fill	Fragment	1	unidentifiable	
NA3673	3673T	Unworked	Room fill	Whole	1	Anodonta californiensis	ID from tag in box
NA1785	1785.R2.1	Bracelet	Room trash fill	Fragment	11	Glycymeris	2 burned
NA1785	1785.R2.1	Bracelet	Room trash fill	Fragment	1	Glycymeris	4 linear carvings
NA1785	1785.R2.1	Bracelet/pendant	Room trash fill	Fragment	5	Glycymeris	perforated umbo
NA1785	1785.R2.4	Tinkler	Room trash fill	Whole	1	Conus regularis	perforated at anterior canal
NA1785	1785.R2.9	Pendant	Room trash fill	Whole	1	Glycymeris	immature. Perforated into umbo
NA1785	1785.R2.24	Spire cut bead	Room trash fill	Whole	10	Olivella	
NA1785	1785.R2.25	Disk bead	Room trash fill	Whole	2	unidentifiable	
NA1785	1785.R2.26	Bilobed bead	Room trash fill	Whole	1	unidentifiable	
NA1785	1785.R2.29	Spire cut bead	Room trash fill	Fragment	1	Olivella	
NA1785	1785.R2.45	Bracelet	Room trash fill	Fragment	6	Glycymeris	1 burned
NA1785	1785.R2.46	Worked	Room trash fill	Fragment	1	Ostrea iridensis	2 cute edges
NA1785	1785.R2.47	Disk bead	Room trash fill	Whole	2	unidentifiable	
NA1785	1785.R2.52	Bracelet	Room trash fill	Fragment	2	Glycymeris	
NA1785	1785.R2.53	Bracelet/pendant	Room trash fill	Fragment	1	Glycymeris	1/2 perforated umbo
NA1785	1785.R2.87	Bracelet	Room trash fill	Fragment	1	Glycymeris	
NA1785	1785.R2.96	Disk bead	Room trash fill	Fragment	1	unidentifiable	1/2 complete
NA1785	1785.R12.1	Worked	Room trash fill	Whole	1	Glycymeris	both ends worked to taper
NA1785	1785.R12.4	Inlay	Room trash fill	Fragment	1	Conus	1/3 complete. Perforated at anteriro canal, burned
NA1785	1785.R12.6	Bracelet/pendant	Room trash fill	Fragment	2	Glycymeris	perforated umbos
NA1785	1785.R13.9	Bilobed bead	Room trash fill	Whole	2	unidentifiable	shell?
NA1785	1785.R13.12	Bracelet	Room trash fill	Fragment	1	Glycymeris	
NA1785	1785.R13.14	Pendant	Room trash fill	Whole	1	Glycymeris	dentate/needle. Partial perforation at wide end, reworked
NA1785	1785.R13.15	Pendant	Room trash fill	Whole	1	Pecten	modified natural
NA1785	1785.R13.16	Bilobed bead	Room trash fill	Whole	1	unidentifiable	
NA1785	1785.R13.17	Disk bead	Room trash fill	Whole	1	Spondylus/Chama	

NA1785	1785.R13.18	Spire cut bead	Room trash fill	Whole	1	Olivella	
NA1785	1785.R13.20	Bracelet/pendant	Room trash fill	Fragment	1	Glycymeris	perforated umbo
NA1785	1785.R13.21	Bracelet	Room trash fill	Fragment	1	Glycymeris	burned
NA1785	1785.R13.46	Bracelet	Room trash fill	Fragment	3	Glycymeris	
NA1785	1785.R13.47	Bracelet	Room trash fill	Fragment	2	Glycymeris	burned
NA1785	1785.R13.52	Ring	Room trash fill	Fragment	1	Glycymeris	immature
NA1785	1785.R13.53	Spire cut bead	Room trash fill	Whole	2	Olivella	
NA1785	1785.R13.63	Bracelet	Room trash fill	Fragment	9	Glycymeris	
NA1785	1785.R13.63	Bracelet/pendant	Room trash fill	Fragment	2	Glycymeris	perforated umbo
NA1785	1785.R13.64	Tabular bead	Room trash fill	Whole	1	Spondylus/Cham a	
NA3676	3676T.1	Bracelet	Trash	Fragment	1	Glycymeris	
NA3676	3676T.3	Bracelet/pendant	Trash	Fragment	1	Glycymeris	perforated umbo
NA3676	3676T.4	Bracelet	Trash	Fragment	7	Glycymeris	
NA3676	3676T.8	Bracelet	Trash	Fragment	1	Glycymeris	
NA1785	1785.R2.56	Spire cut bead	Trash Section A	Whole	2	Olivella	
NA3673	3673.T.28	Bracelet	Trash Section A	Fragment	1	Glycymeris	
NA3673	3673.T.29	Bracelet	Trash Section A	Fragment	1	Glycymeris	incised
NA3673	3673.T.36	Bracelet/pendant	Trash Section B	Fragment	1	Glycymeris	perforated umbo
NA3673	3673.T.37	Bracelet/pendant	Trash Section B	Fragment	1	Glycymeris	perforated umbo
NA3673	3673.T.38	Bracelet	Trash Section B	Fragment	1	Glycymeris	
NA3673	3673.T.39	Bracelet	Trash Section B	Fragment	1	Glycymeris	burned
NA3673	3673.T.41	Bead/pendant	Trash Section B	Whole	1	Glycymeris	perforated umbo. Immature Glycymeris
NA3673	3673.T.43	Spire cut bead	Trash Section B	Whole	1	Olivella	
NA3673	3673.T.52	Disc bead	Trash Section C	Whole	2	unidentifiable	
NA3673	3673.T.57	Spire cut bead	Trash Section D	Whole	1	Olivella	
NA3673	3673.T.59	Bracelet/pendant	Trash Section D	Fragment	1	Glycymeris	perforated umbo
NA1785	1785.R2.57	Spire cut bead	Trash Section E	Whole	1	Olivella	
NA1785	1785.R2.71	Disk bead	Trash Section E	Whole	1	unidentifiable	
NA1785	1785.R2.72	Spire cut bead	Trash Section E	Whole	6	Olivella	2 burned

NA1785	1785.R2.74	Bracelet	Trash Section E	Fragment	2	Glycymeris	burned
NA1785	1785.R2.65	Bracelet/pendant	Trash Section F	Fragment	1	Glycymeris	perforated umbo, burned
NA1785	1785.R2.63	Spire cut bead	Trash Section G	Whole	4	Olivella	3 burned
NA1785	1785.R2.79	Bracelet	Trash Section J	Fragment	1	Glycymeris	

APPENDIX E
FULL SHELL DATABASE OF SHELLTOWN FROM MARMADUKE ET AL. (1993)

Taxonomic Identification	Non-Mortuary	Mortuary
Glycymeris sp.	10,695	4
Glycymeris sp. (juvenile)	11	
Glycymeris maculata	53	
Glycymeris gigantea	237	
Glycymeris multicosta (juvenile)	1	
Laevicardium elatum	59	
Laevicardium elatum (juvenile)	2	
Pteria stema	35	
Pinctada/ Pteria sp.	4	
Spondylus sp.	9	
Spondylus calcifer	8	
Spondylus/Chama sp.	4	
Argo pecten circulairis	14	
Argo pecten circularis (juvenile)	7	
Lyro pecten subnodcsus	1	
Pecten vogdesi	4	
Pecten sp.	2	
Dosinia sp.	9	
Dosinia dutkeri	1	
Protothaca sp.	1	
Chione/Protothaca sp.	1	
Anadara grandis	1	
Indeterminate Nacreous	5	
Indeterminate Bivalve	4	
Olivella dama	3	
Olivella sp. (juvenile)	3	1
Strombus gracilor	2	

Melongena patula	1	
Theodoxus sp.	4	
Turritella sp.	2	
Vermitidae Family	1	
Vermetus/Vernicularia	1	
Cerithidea sp.	4	
Cerithidea sp. (juvenile)	1	
Trivia sp.	1	
Columbella sp.	1	
Cypraea sp.	1	
Nassarius sp.	1	
Indeterminate Gastropod	4	

Technological Class	**Non-mortuary**	**Mortuary**	**Total**	**%**
Bracelet Manufacturing Debitage	9,770	3	9,773	87.1%
Unfinished Ornaments	1,049		1,049	9.4%
Unworked Fragments	106		106	0.9%
Semi-finished Ornaments	75	1	76	0.7%
Finished Ornaments	71	1	72	0.6%
Raw, Whole Shell	43		43	0.4%
Debitage	23		23	0.2%
Indeterminate Technology	25		25	0.2%
Partially Worked Fragments	16		16	0.1%
Worked Fragments	16		16	0.1%
Freshly Broken Shatter	6		6	0.1%
Reworked Fragments	9		9	0.1%
Utilized Shell	1		1	0.00%
Totals	11,210	5	11,215	100%

G	RWS	UO	SFO	FO	BD	D	UF	PWF	WF	RO	UF	FBS	I	T
Pelecypods														
Glycymeris sp.	4	874	64	35	9,693	1		1		7			20	**10,699**
Glycymeris sp. (juvenile)		*5*		4			2							**11**
G. maculata	*29*	10			1			7				6		53
G. gigantea		144	12	2	79									237
G. multicosta (juvenile)							1							**1**
Dosiniasp.		1				6	2							9
Dosinia dunkeri							1							1
Laevicardium elatum		2		13			32	6	4	**1**	1			59
Laevicardium elatum (juvenile)							**1**			1				2
Argo pecten circularis		3		*5*			3	1	2					14
Argo pecten circularis (juvenile)		3		2			2							7
Pecten sp.				1			1							2
***P.** vogdesi*		2					1						1	4
Spondylus sp.		1				6	2							9
S. calcifer						4	3		1					8
Spondylus/Chama sp.						4								4
Pteria stema		3					23	**1**	7					35
Pinctada/ Pteria				2			2							4
Protothaca sp.							1							1
Protothaca/Chione sp.							**1**							1
Lyrypecten subnodosus							1							1
Anadara grandis							1							1
Indet. Bivalve						2	2							4
Indet. Nacreous				1			4							5
Total Pelecypods	33	1,048	76	66	9,773	23	86	16	14	9	1	6	21	11,172
Gastropods														
Olivella sp. (juvenile)	1	1		1									1	4
O. dama	3													3
Turitella sp.				1			1							2
Columbella sp.				1										1

Strombus gracilor							2							2
Melongena patula							1							1
Neritina luteofasciata	3								1					4
Trivia sp.							1							1
Cerithidea sp.	2			1									1	4
Cerithidea sp. (juvenile)				1										1
Cypraea sp.				1										1
Nassarius sp.	1													1
Vermetidae/Vermicularis							1							1
Vermetidae Family							1							1
Indet. Gastropod							4							4
Total Gastropods	10	1	0	6	0	0	11	0	1	0	0	0	2	31
Indet. Marine							6		1				2	9
Totals	43	1,049	76	72	9,773	23	103	16	16	9	1	6	25	11,212

G = Genera; RWS = Raw, Whole Shells;UO = Unfinished Ornaments; SFO = Semi Finished Ornaments; FO = Finished Ornaments; BD = Bracelet Debitage; D = Debitage; UW = Unworked Fragments; PWF = Partially Worked Fragments; WF = Worked Fragments; RO = Reworked Ornaments; UF = Utilized Fragments; FBS = Freshly Broken Shatter; I = Indeterminate; T = Totals

	Whole	**Fragment**	**Indeterminate**
Unworked	43	103	
Worked Ornaments	1125	16	
Debitage		9802	
Reworked		9	
Utilized		1	
Indeterminate			25

Technological Class	Formal & small structures	Informal structure	Trash deposits	Pits	Floor pits	Caches	Cremations	Totals
Raw, whole shell	8		23		1	11		43
Unfinished ornaments	382	84	384	23	94	82		1,049
Semi-finished ornaments	42	9	23			1	1	76
Finished ornaments	50	1	18	1		1	1	72
Bracelet debitage	4,832	712	4,158	10	7	51	3	9,773
Debitage	18		5					23
Unworked fragments	82		19	4		1		106
Partially worked fragments	6		9		1			16
Worked fragments	13		3					16
Reworked ornaments	8	1						9
Utilized fragments	1							1
Indeterminate tech.	18	1	6					25
Freshly broken			6					6
Totals	5,460	808	4,654	38	103	147	5	11,215

APPENDIX F
FULL SHELL DATABASE OF THE HIND SITE FROM MARMADUKE ET AL. (1993)

Genera	Count
Anachis	1
Argopecten	32
Cardita	1
Chama	5
Chione	2
Codakia	2
Columbella	7
Conus	1
Dosinia	590
Glycymeris	6568
Glycymeris/Dosinia	6
Haliotis	4
Indeterminate bivalve	467
Indeterminate gastropod	4
Indeterminate nacreous	1
Indeterminate operculum	1
Laevicardium	42
Megapitaria	1
Olivella	101
Pecten	3
Pinctada/Pteria	11
Pteria	5
Spondylus	557
Spondylus/Chama	279
Trachycardium	1
Trivia	1
Turritella	3
Vermetidae	2
Vermetus/Vermicularia	2

Technological Class	Non-Mortuary	Mortuary	Total	Percentage
Bracelet Manufacturing Debitage	5,867		5,867	67.20%
Bead Manufacturing Debitage	1,105		1,105	12.70%
Unfinished Ornaments	908	1	909	10.40%
Unidentifiable Debitage	235		235	2.70%
Unworked Fragments	193		193	2.20%
Finished Artifacts	129	2	131	1.50%
Raw Shell	62		62	0.70%
Semi-finished Ornaments	48		48	0.50%
Indeterminate Technological Stage	38	86	124	1.40%
Worked Fragments	37	2	39	0.40%
Partially-Worked Fragments	9		9	0.10%
Reworked Artifacts	2		2	0.00%
Unfinished and Reworked	2		2	0%
Native Molluscs	2		2	0.00%
Totals	8,637	91	8,728	100%

	Fragment	Whole	Indeterminate
Unworked	193	66	
Worked	48		
Reworked		2	
Debitage	7207		
Ornaments		1088	
Indeterminate			124

G	RWS	UO	SFO	FO	RA	BD	BdD	D	UF	PWF	WF	UR	I	T
Pelecypods														
Glycymeris sp.	14	445	39	52	1	5831	3				1	1	7	6394
Glycyeris sp. (juvenile)		3		2					1					6
G. maculata	1	12				2								15
G. maculata (juvenile)	2													2

G. gigantea		104	5	4	1	34							1	149
G. mulicostata			1	1										2
Glycyermis/Dosinia								6						6
Dosinia sp.		39		1			492	48	7		2			589
Dosinia ponderosa											1			1
Laevicardium elatum	1	1	1						35	1	2			41
Laevicardium elatum (juvenile)									1					1
Argo pecten circularis	1		1						3		3		12	20
Argo pecten sp. (juvenile)	3	2		3					2		1		1	12
Pecten sp.									1					1
P. vogdesi				1					1					2
Spondylus sp.		14		5			363	33	14	1	12		6	448
S. calcifer		1	1	1				83	14		6	1		107
S. princeps										1	1			2
Spondylus/Chama sp.		34		14			75	55	58				43	279
Chama sp.									4	1				5
Pteria sterna		2							1		2			5
Chione sp.									1					1
Chione fluctifraga	1													1
Anachis sp.				1										1
Codakia distinguenda									2					2
Trachycaridum panamenese		1												1
Pinctada/Pteria		1		4					1	3	1		1	11
Cardita sp.									1					1
Megapitaria sp.										1				1
Indet. Bivalve	2	218	1	17			172	10	22	1	5		19	467
Indet. Nacreous									1					1
Gastropods														
Olivella sp.									3					3
Olivella sp. (juvenile)	1			1										2

O. dama	22	27		13					1				6	69
O. dama (juvenile)	14	4		6									3	27
Conus sp.									1					1
Haliotis sp.													2	2
Trivia sp.			1											1
Turitella sp.									2					2
T. leucostoma											1			1
Columbella sp.											1			1
C. major				1										1
C. strombus	1			1					2					4
C. fuscata	1													1
Vermetidae/Vermicularia									2					2
Vermetidae Family									2					2
Indet. Gastropod									4					4
Indet. Operculum									1					1
Indet. Marine									5				23	28

G = Genera; RWS = Raw, Whole Shells;UO = Unfinished Ornaments; SFO = Semi Finished Ornaments; FO = Finished Ornaments; BD = Bracelet Debitage; BdD = Bead Debitage; D = Debitage; UW = Unworked Fragments; PWF = Partially Worked Fragments; WF = Worked Fragments; UR = Unworked and Reworked; RO = Reworked Ornaments; UF = Utilized Fragments; FBS = Freshly Broken Shatter; I = Indeterminate; T = Totals

No. of Sampled Features	Feature Type	Shell Quantities	% of Total Shell	Average per Feature
17	Formal Structures	5,873	67.3%	345
3	Small Structure	191	2.2%	64
10	Informal Features	1,851	21.2%	185
1	Borrow Pit	520	6.0%	520
3	Trash Deposits	154	1.8%	51
3	Cremations	91	1.0%	30
2	Shell Caches	15	0.2%	8
2	Pits	12	0.1%	6
1	Roasting Pit	*9*	0.1%	*9*

1	Unexcavated Structures	12	0.1%	12

Technological Class	Formal & Small Structures	Informal Structures	Formal Trash Deposits	Borrow Pit	Pits	Roasting Pits	Shell Caches	Cremations	Total
Unfinished	724	122	43	12	4	3		1	907
Semi-finished	34	8	5	1					48
Finished	104	21	1	3				2	131
Debitage	204	22	*5*		1	3			235
Bracelet Debitage	4,189	1,070	96	503	6	3			5,867
Bead Debitage	1,092	13							1,105
Raw	22	26					14		62
Unworked	122	66	3	1	1				193
Partially Worked	7	2							9
Worked	26	10					1	2	39
Re-worked	4								4
Indeterminate	21	16	1					86	124
Native Molluscs	2								2
Totals	6,551	1,376	154	520	12	9	15	91	8,728