EXCAVATING THE ARCHIVES: A RE-ANALYSIS OF ARTIFACTS RECOVERED FROM CATCLAW CAVE

By

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Abstract

The purpose of this thesis research is to a) promote collaboration between archaeologists, federal agencies, and repositories, through museum-based archaeology, b) bring attention to an under-researched region of the Southwest, c) understand the use of Catclaw Cave, d) understand Patayan culture and use of the Lower Colorado River Valley, and e) identify potential trade networks between inhabitants of the Lower Colorado River Valley and other communities in the Southwest. This thesis, which focuses on habitation and lifeways prior to contact with Europeans, is guided by the hypothesis that the Colorado River served as a major trade route for people living in the Southwest. Most re-analysis methods used during this project were non-destructive. They focused on the styles, constructions, or types of ceramic, lithic, faunal, and floral artifacts recovered from Catclaw Cave in order to compare them to other sites in the region (see Figure 1).

Keywords: Museum-based archaeological research, Patayan Culture, Lower Colorado River Valley, Catclaw Cave.

Figure 1: Colorado River and subsequent basins (USGS 2016).

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I would also like to thank Barton Wright and his crew for excavating Catclaw Cave in 1949. Without the work of these students, Catclaw Cave would have been lost. Special thanks to Al Ferg and the Arizona Archeological Society for compiling information and publishing Barton's thesis in 2008.

Finally, I’d like to thank the Arizona Archaeological and Historical Society for awarding this project the 2022 Travel Grant, this funding was utilized to travel to the Museum of Northern Arizona and review the bulk of the Catclaw Cave collection. Additionally, I’d like to thank the Nevada Archaeological Association/AmARC Society for awarding this project the 2022 Student M.A. Research Grant in 2022, this funding was utilized to complete radiocarbon dating on corn cobs recovered from the site.

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Chapter 1: Introduction

In 1949, Barton Wright, a Master's student in anthropology at the University of Arizona, began excavations at Catclaw Cave, roughly 28-miles downstream from the Hoover Dam, in northwestern Arizona along the Colorado River (Figure 2). Before this excavation, only two archaeological sites had been excavated in the Lower Colorado River Valley region. The artifacts recovered from Catclaw Cave are one of only two collections made prior to the inundation of Lake Mojave. With increasing environmental pressures, drought has significantly impacted Lake Mead and Lake Mojave, potentially exposing additional archaeological sites previously buried beneath the waters of the Colorado River. As little archaeological research has been conducted within the region, re-analyzing the assemblage recovered from Catclaw Cave is essential to understanding the occupation of the Colorado River Valley prior to contact with Europeans. This thesis project focuses on the re-analysis of the Catclaw Cave assemblage.

Figure 2: Location of Catclaw Cave (Swett).

Native America: A Brief Discussion of Traditional Histories of Lower Colorado River Tribes

Indigenous people have called the Colorado River Valley home for thousands of years. Oral traditions can help piece together the history of the landscape as accounts of journeys and experiences shed light on key landforms like the Colorado River. Tribal oral histories can help archaeologists, historians, and, ultimately, cultural resource managers identify culturally significant areas and understand the use of the landscape prior to the arrival of Europeans and other diverse communities. This section will discuss traditional stories of Native American Tribes who have called the Lower Colorado River Valley home. These histories have either been published by the Tribe, a Tribal Member, or recorded by ethnographers, some of whom have conducted ethnographic research in collaboration with the Tribes.

The Hualapai traditional homelands encompass much of the Lower Colorado River Valley and portions of what is now eastern Arizona. Traditional narratives identify the creation of all people, including the Hualapai, resulting from the action of the Great Spirit, who crafted people in his image within the canyons of the Colorado River Valley. The name Hualapai means “People of the Tall Pines,” which references the sacred connection between the Hualapai and their traditional homelands (Hualapai Tribe 2011[1]).

The Mojave, Pipa Aha Macav, or “The People by the River,” have called the Colorado River Valley home since their creation. The tribe traces its origin to Spirit Mountain in southern Nevada. Traditional history tells that the Mojave spirit mentor, Mutavilya, created the Colorado River, plants, and animals. Mutavilya taught the Pipa Aha Macav the arts of civilization, including farming practices and trade; following this instruction, the Pipa Aha Macav developed trade networks spanning the Colorado River Valley to the Pacific Ocean (Fort Mojave Indian Tribe 2019[2]).

The Hopi traditional homelands encompass much of the modern-day southwestern United States. Hopi history places an emphasis on an individual’s role within the community including clan membership leading to a diverse history consisting of multiple perspectives and experiences, while maintaining consistency evident in ethnographic records dating back to the early 20th century (Bernardini 2008[3]). Traditional stories, discussed with anthropologists and ethnographers, identify the

[1] In the Hualapai Tribal website includes information on the history and oral traditions of the Hualapai Tribe.

[2] The Fort Mojave Indian Tribe website includes information on the history and oral traditions of the Fort Mojave.

[3] Wesley Bernardini is an anthropologist who has worked with the Hopi people for many years on the recordation of Hopi oral history and tradition. His 2008 work, “Identity as History: Hopi Clans and the Curation of Oral Tradition” is a stepping stone to understanding the complex innerworkings of Hopi Tribal politics and the importance of oral tradition in regional and kin groups.

goddesses (Huruing Wuhti) of the East and West, who brought forth landforms from the oceans. After the sun noticed no living things on Earth, the Huruing Wuhti of the east and west worked together to create animals. However, no one realized that Spider-Woman was living in the Southwest. When the Huruing Wuhti began to create people, Spider Woman began to create her own people, though Spider Woman's people tended to have significant conflicts with each other. These conflicts began to spread to the Huruing Whuti's people. Soon, the Huruing Whuti of the east and the west moved to the middle of the ocean to escape the negative people. The Hopi, people of the Huruing Whuti of the west, were told to pray to the Huruing Whuti should they require anything following her move to the ocean (Erdoes and Ortiz 1984[4]).

Hopi tradition discussed and recounted by Tribal Members and anthropologists in a collaborative approach to ethnographic and historic studies, recognizes that the contemporary world is currently the Fourth World [*Sipàapuni*] (Bernardini et al. 2021:15[5]). One after another, previous worlds had become corrupt, resulting in the need for a fresh start (Bernardini et al. 2021:15[6]). Hopi ancestors entered *Sipàapuni* in

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[4] Richard Erdoes, an artist and author, is well known for his work regarding Native American culture, tradition, and experiences in the 20th century. Alfonso Ortiz, a anthropologist and member of the Ohkay Owingeh Pueblo Tribe in New Mexico, is well known for his work regarding the recordation of Native American culture and traditional history.

[5] Wesley Bernardini in collaboration with the Hopi Tribe co-authored the book entitled "Being Hopi" in 2021, which includes traditional histories and oral narratives written by Tribal members as well as a wealth of information regarding Hopi culture and traditions.

[6] Ibid

"search of a humble way of life after kayaanisquatsi" a Hopi term used to describe a "life of moral corruption and turmoil" (Bernardini et al. 2021:15[7]). Hopi accounts identify important formations throughout the Colorado River Valley landscape, including sacred spots in the Little Colorado River Gorge and the Grand Canyon (Bernardini et al. 2021:15[8]). Various clans of the Hopi recognize their ancestors entered *Sipàapuni* at different locations, recognized as sacred to each clan as well as the Hopi community as a whole (Bernardini et al. 2021:15[9]). Additionally, the Hopi entered into an agreement with the "Earth Guardian, *Màasaw"* (Bernardini et al. 2021:16[10]). Through this agreement, the Hopi left behind remains "as proof they had vested the land with their stewardship and fulfilled their spiritual responsibilities" (Bernardini et al. 2021:16[11]). History of Hopi migration is incredibly important to understanding use of the landscape prior to and immediately following contact with settlers and conquistadors (Bernardini 2008[12]).

The Tohono O'odham traditional homelands extend throughout modern-day central Arizona, west of the Gulf of California, and south to Sonora, Mexico.

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[7] Ibid

[8] Ibid

[9] Ibid

[10] Ibid

[11] Ibid.

[12] See 3.

Ethnographic records regarding the creation story of their cousins, the Pima (Salt River Pima Maricopa), holds that the Magician created three groups of people. Only after Coyote tricked him into removing one group too early and another too late from the oven did the Magician finally create the peoples of the Southwest (Erdoes and Ortiz 1984[13]).

Traditional Tohono O'odham history centers on the creation of the O'odham by *Uh Itoi* and his creator *Makkah* and are a distinct group of autumn (Siquieros 2022[14]). The twist turns of life, frequently represented in maze motifs in pottery, are recognized through the Tohono O'odham culture and beliefs are referred to as *himadak (*Siquieros 2022[15]*).* Tohono O'odham histories identify local formations such as mountains as significant and sacred places where the creator resides (Siquieros 2022[16]). When tribal members need guidance, they frequently travel to this location where they seek support from and bring offerings for the creator (Siquieros 2022[17]). The Tohono O'odham are referred to as the *Akumar Atam,* which includes all Tohono O'odham peoples, though

[13] See 4

[14] Bernard Siquieros, was the Curator of Education for the Tohono O'odham Tribe as well as a board member for the Amerind Foundation and a notable photographer and expert on the history of the Tohono O'odham peoples. In 2022, he spoke about the history of the Tohono O'odham Tribe as part of the Amerind Foundation lecture series, available on youtube.

[15] Ibid

[16] Ibid

[17] Ibid

tribes are also referred to as the Hyatt Autumn, Don No Autumn, and the Akamar Daturn (Siquieros 2022[18]). The importance of the landscape and region are reflected in Tohono O'odham tradition represent the importance of the Tribe's traditional homelands (Siquieros 2022[19]).

The Chemehuevi occupied portions of the Lower Colorado River Valley prior to the arrival of the Spanish. According to traditional narratives, Ocean Woman created the Earth by dropping mud into the ocean and spreading ball of mud across the sea forming the land (Trafzer 2015:21-22[20]). Created from the pieces of Ocean Woman, Coyote and his brothers Wolf and Mountain Lion lived in the Snow Mountain in modern-day Southern Nevada (Trafzer 2015:22-23[21]). Following the pursuit of a young woman named Louse, Coyote traveled from the Spring Mountains of southern Nevada to an island in the pacific (Trafzer 2015:23[22]). The relationship between Coyote and Louse resulted in several eggs which were placed in a basket by Louse's mother (Trafzer 2015:24[23]). Given the basket upon his departure, Coyote, was only supposed to open

[18] Ibid

[19] Ibid

[20] . Clifford Trafzer's work entitled "The Chemehuevi: the Resilience of a Southern Paiute Tribe" was completed in close collaboration and consultation with the Twenty-Nine Palms Tribes, a Chemehuevi Tribe residing in southern California. Trafzer's work was conducted after meeting with Tribal elders and Government officials interested in preserving Chemehuevi tradition and history through the compilation of oral histories. Trafzer's work is listed as a must read by the Twenty-Nine Palms Tribal website for additional information on the history of the community.

[21] Ibid

[22] Ibid

[23] Ibid

the basket once he arrived at his home (Trafzer 2015:24-25[24]). However, after crossing the ocean, the basket became too heavy, and Coyote untied it, letting the coastal people escape before he could re-tie the basket. Once he reached his home, Coyote and his brother Wolf opened the basket, releasing the Chemehuevi and other Native peoples (Laird 1984; Cultural Systems Research Inc 2002; Trafzer 2015:25[25]). The Chemehuevi and Southern Paiute peoples are related and share many similar cultural traits as well as many tribal nations throughout southern Nevada, Claifornia, and Arizona. (Trafzer 2015:17[26]).

The Southern Paiute creation story, as recorded by the Utah American Indian Digital Archive, centers on the story of the wise wolf (Tabuts) and his mischievous younger brother Coyote (*Shinangway*). In this story, Tabuts set out to create people and to place them across the landscape. In order to achieve this, he placed people in a basket and prepared to set off on the journey, but *Shinangway* cut open the sack, and people fell to the ground. Angry with their treatment, the people who fell from the sack had many conflicts with each other. When Tabuts reached his destination, the Southern

[24] Ibid

[25] George Laird is a respected anthropologist, whose documentation of the Chemehuevi people (along with that of Isabelle Kelly and Catherine Fowler) has allowed for continued and additional research into the history of the Chemehuevi.

[26] Ibid

Paiute were the only people left in the basket. Blessed by Tabuts, the Southern Paiute lived peacefully (Utah American Indian Digital Archive 2009[27]).

Colonialism: The Arrival of the Spanish and the Western Expansion of the United States

While the impacts of colonialism were felt throughout the southwestern United States following the arrival of Europeans in the 15th century, Indigenous peoples of the Lower Colorado River Valley came into contact with the Spanish Conquistador, Francisco Vázquez de Coronado in the 16th century during his march north in pursuit of the Seven Cities of Cíbola (Salisbury 1996:435; NPS 2019) (see Figure 3). Members of the Hopi tribe led Coronado and his army to the Colorado River. Wisely, the Hopi chose the most difficult path to the river and provided no information to the unwelcome Spanish. The Hopi convinced the conquistadors that the Colorado River was an impenetrable barrier and that the U.S. Southwest offered nothing of value to the Europeans (NPS Grand Canyon 2022). While Coronado traveled with the Hopi, his counterpart Hernando Alarcón explored the southern portion of the Lower Colorado River, sailing up the mouth of the Colorado through the Gulf of California (Elsasser

[27] The Utah American Indian Digital Archive is a collaborative project between the Navajo Nation, the Paiute Tribe of Utah, the Northwestern Band of the Shoshone Nation, the Confederated Tribes of the Goshute Reservation, White Mesa/Ute Mountain Utes, Skull Valley Band of Goshute Indians, and the Ute Indian Tribe as well as the University of Utah and the State of Utah. Oral histories and traditional stories have been recorded and presented through the Utah American Indian Digital Archive.

1964). By 1800, the United States had begun its western expansion, and the Spanish settlers had won independence from Spain, creating the Mexican Republic.

Figure 3: Coronado's route of exploration (Planetary Science Institute 2021).

The annexation of Texas in 1845 led to tense relations between the U.S. and Mexico, and by 1846, the Mexican-American War had begun with no resolution in sight until the signing of the Treaty of Guadalupe Hidalgo in 1848. The Indigenous people of the Lower Colorado River Valley traded one colonial overlord for another. Mexico ceded a majority of California, Nevada, Arizona, and New Mexico to the U.S., though portions of southern Arizona remained in Mexican control until the Gadsden Purchase in 1854 (Treaty of Guadalupe Hidalgo 1848; NPS Science of the American Southwest 2022). With new territory to the west, the United States Government began explorations of the region. In 1857, Joseph Christmas Ives undertook an exploration mission from Fort Yuma, Arizona, in a steamboat labeled the *Explorer*. Ives and his crew recorded the environment and their encounters with the Indigenous people of the Colorado (see Figure 4). Ives finally reached the Las Vegas Wash in 1858 after a series of rapids and other dangerous conditions delayed the expedition (1861).

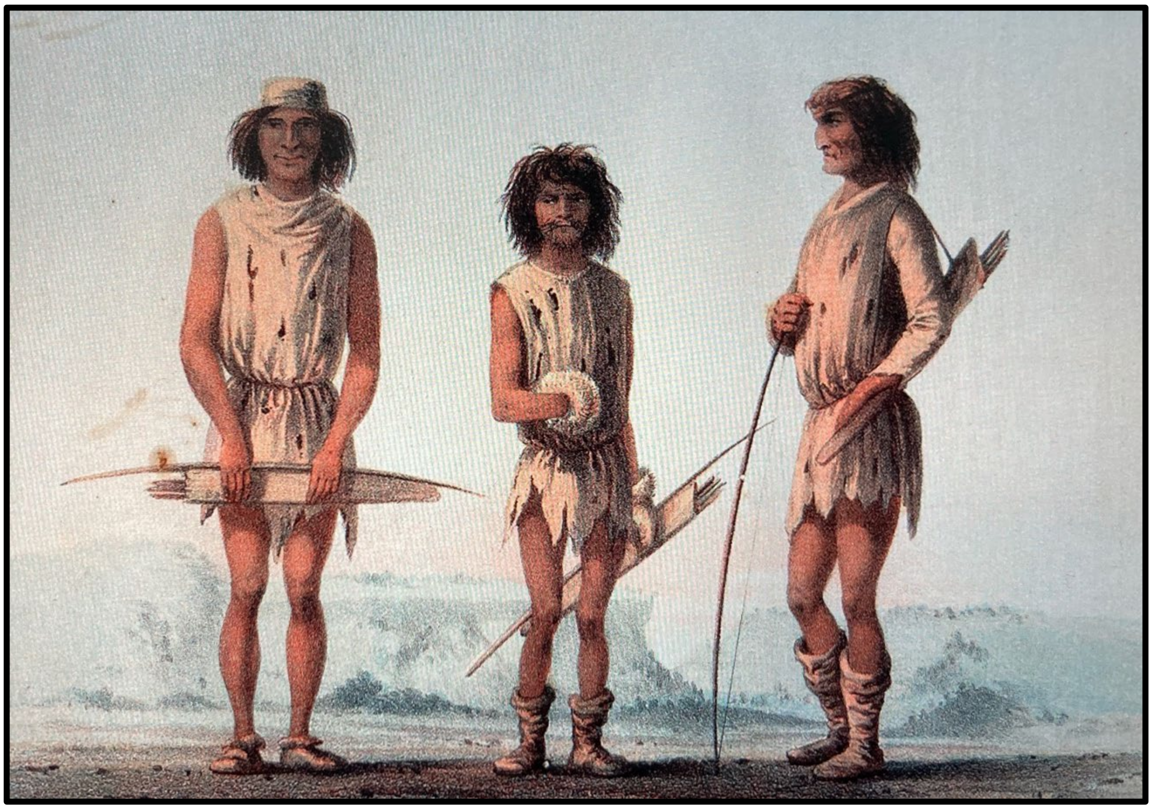

Figure 4: Members of the Hualapai Tribe encountered during Ives' Expedition of the Colorado River (National Archives and Records Administrations, Ives; 2022).

In the 19th century, the Federal Government passed the Indian Removal Act of 1830 which forcibly removed Native American peoples from their traditional homelands in the eastern United States (Office of the Historian 2016). While the Federal Government stated that Native American peoples would receive land west of the Mississippi river in exchange for their homelands in the eastern United States, American settlers continued moving west (Office of the Historian 2016). New Acts and executive orders led to the establishment of reservations throughout the region. The Indian Appropriations Act of 1852 and the Homestead Act of 1862 forced many Native Americans onto these established reservations (NPS Homestead National Park 2021).

In 1883, the Hualapai Reservation was established through and executive order (Hualapai n.d.). while the Colorado River Indian Tribe was established in 1865 for Indigenous peoples of the Colorado River specifically the Mojave and Chemehuevi peoples (Colorado River Indian Tribes n.d.). Members of the Hopi and Navajo Tribes were moved to the Colorado River Indian Tribe reservation after 1945 (Colorado River Indian Tribes n.d.).

In 1887, the passage of the Dawes Act authorized the President to survey Indian tribal lands and divide them into allotments for individuals and families. Under the Dawes Act, Euro-American settlers interested in acquiring lands within the boundary of a previously established reservation could do so with no required compensation (Otis 1973; National Park Service Badlands 2022). By the time the Director of the United States Geological Service (USGS), John Wesley Powell, began his exploration of the Colorado River in 1869, the Indigenous communities of the Lower Colorado River had been impacted severely by Euro-American colonialism. Powell, known for his contributions to USGS's topographic mapping of the United States, also authored some of the earliest surviving Anglo-American ethnographic accounts of the Indigenous groups who lived along the river. These documents served as the formative basis for the U.S. Bureau of Ethnology in the Smithsonian Institution (USGS Powell 2022).

While Powell's ethnographic accounts echo the period in which he lived, reflecting biases and stereotypical views popular in the 19th century, they offer a window into the interactions between early Anglo-American explorers and the Indigenous communities of the Colorado River. Ethnographies are inherently biased, but researches must recognize the "anthropological political economy" present at the time of recording (Roseberry 1989; Boxberger 2003). The early ethnographic accounts compiled by Powell fit within the early development of American anthropology which focused on the gathering of information specifically for exhibition in museums (Boxberger 2003).

Whiskey, Water, and the Fight for Water Rights in the Southwest

Created in 1902, the United States Reclamation Service transformed the arid west into arable and habitable farmland for the American public. Re-named the Bureau of Reclamation (Reclamation) in 1907, the agency constructed the Laguna Diversion Dam and several irrigation canals to aid farmers' water supplies in Imperial Valley, California, and Yuma, Arizona. Laguna Dam's completion signified the federal government's promise to the American West's farmers to ensure access to water and arable land. Still, more dams would need to be constructed along the Lower Colorado River to achieve control of the Colorado River. Between 1902 and 1940, Reclamation had withdrawn or purchased significant portions of land in southern Nevada, Arizona, and southern California after surveying canyons to determine the perfect place to construct the dams.

In 1931, Hoover Dam's construction began in Black Canyon, near the small railroad towns of Las Vegas, Nevada, and Kingman, Arizona. Five years later, the construction of Davis Dam began sixty miles downstream. Both dams were constructed to create large storage reservoirs and played crucial roles in developing the arid west. The subsequent inundation of Lakes Mead and Mohave led to the estimated destruction of an untold number of archaeological sites throughout the Colorado River Valley (Haynes 2022).

Catclaw Cave: An Introduction and Project Overview

Prior to the completion of Davis Dam, official archaeological surveys were completed by Barton Wright and his crew, students of Emil Haury at the University of Arizona (Wright 1948). Additional surveys completed by Gordon C. Baldwin (1943 and 1948) and Albert Schroeder (1950 and 1952), both archaeologists working for the newly formed National Park Service Lake Mead National Recreation Area (NPS LAKE), resulted in the discovery of archaeological resources throughout the Lake Mohave area. Wright, a local, was aware of the identification of significant archaeological materials at the Lost City Archaeological Complex, a site excavated prior to the inundation of Lake Mead years earlier. Aware of the high probability of additional archaeological materials representing “early-man,” Wright began salvage excavations at Catclaw Cave, under permit with NPS LAKE in 1949 (Wright 1948; 1949; and 1954).

The subsequent results of this excavation are documented in his master’s thesis, approved in 1954, and published by the Arizona Archaeological Society in 2008 (Wright 1954; and Wright et al.2008). In his thesis, Wright compares the assemblage recovered from Catclaw Cave to those recovered from archaeological sites excavated between 1920 and 1952 within the Southwest. While he suggests vague possible uses for Catclaw Cave throughout his thesis, he does not interpret the utilization of the cave and predominately focuses on the use of the site by three cultural groups: the Armagrosa people, the Basketmaker people, and the Patayan people. Based on the best available information, Wright’s suggestions and identifications reflect the early days of archaeological research in the region. Since 1954, archaeological research in the Southwest, Great Basin, and California has increased knowledge of the use and habitation of the region prior to contact with Europeans. Re-analysis of artifact assemblages recovered from various sites in the region has led to updates in artifact typologies, cultural identities, and use of artifacts.

Drought and Climate Change

Drought conditions continue to impact the Colorado River watershed; subsequently, there is a high probability archaeological sites will surface amidst the shrinking boundaries of the reservoirs established by the Dams constructed in the 20th century. Analyzing assemblages recovered from archaeological excavations prior to inundation can identify what type of archaeological sites may be found within the region and may better assist archaeologists in determining the probability of archaeological sites within specific geographic settings. The Catclaw Cave assemblage can identify the use and habitation of the Lower Colorado River prior to contact and serves as a stark reminder of the growing need for curational support within Cultural Resource Management.

While recent research has predominately focused on archaeological sites within the broader confines of the Great Basin, Southwest, or Californian regions, this project will endeavor to identify an under-researched region. Current interpretive signs throughout the river valley discuss little of the indigenous populations who have lived and continue to live in the Colorado River Valley, instead focusing on the Euro-American view of the river as a border and the Southwest as an arid and inhabitable region. This project investigates the use and habitation of Catclaw Cave and the Lower Colorado River Valley. Through a re-analysis of the artifact assemblage, new information and insight into typology and artifact use compiled from additional excavations in the region conducted between 1950 and 2010 can provide insight into the use of Catclaw Cave and provide more insight into the lifeways of the Patayan community. Additionally, this project will compile all previous analyses of the Catclaw Cave assemblage into one document and create an updated catalog for the assemblage. The purpose of this thesis research is to a) promote collaboration between archaeologists, federal agencies, repositories, and descendant communities through museum-based archaeology, b) bring attention to an under-researched region within the Southwest, c) understand the use of Catclaw Cave, d) understand Patayan culture and use of the Lower Colorado River Valley, and e) identify potential trade networks between inhabitants of the Lower Colorado River Valley and other communities in the Southwest.

Chapter 1 of this thesis introduces the Lower Colorado River Basin and describes the need for further research to provide additional understanding of Patayan culture; Chapter 2 includes an extensive background review of the local environment, a regional archaeological context, and an ethnographic overview of the region; Chapter 3 outlines the history of archaeological work in the Lower Colorado River Basin, and previous archaeological investigations at Catclaw Cave; Chapter 4 of this thesis outlines specific research questions, data sources, methods, and planning; Chapter 5 of this thesis outlines the analysis of the ceramic, lithic, perishable, and floral assemblages recovered from Catclaw Cave; Chapter 6 includes the discussion and conclusions resulting from the analysis; and, finally, Chapter 7 outlines the significance of this thesis research and suggestions for future actions.

A Note About Terminology

Archaeologists utilize terms to chronologically separate Native people's use and habitation of the landscape prior to the arrival of Europeans in the 15th century. This thesis uses the term *pre-contact* to discuss the period referred to by some archaeologists as *prehistoric* and *post-contact* to discuss the period referred to by some archaeologists as *historic* (Little et al 2000:8). While chronology is part of the process of nominating a site to the National Register of Historic Places (Little et al 2000:8) and is utilized in Cultural Resource Management, the separation between pre-contact and post-contact archaeology impacts how changes and shifts in culture is viewed within American Anthropology (Lightfoot 1995: Oland et al 2012).

This thesis discusses use and habitation of Catclaw Cave and the Lower Colorado River Valley prior to contact as well as archaeological research of the Lower Colorado River Valley and Catclaw Cave.

Chapter 2: Background

This thesis utilizes museum-based archaeological research and focuses on previous research and early investigations. In order to understand the relationship between the artifacts discovered in 1949 at Catclaw Cave, it is imperative to identify the location, geography, ecological environment, and climate. Substantial changes to the landscape and environment of Catclaw Cave have occurred since Native people began using the cave. These changes have irrevocably impacted Catclaw and other archaeological sites.

Location, Geography, Environment, and Climate

Located within the Lake Mead National Recreation Area (Lake Mead NRA), Catclaw Cave is under the managerial jurisdiction of the NPS LAKE, but the primary land owner is Reclamation. These agencies are part of the United States Department of the Interior. In 1947, government officials signed an addendum to the 1936 Memorandum of Agreement between NPS LAKE and Reclamation for the management of cultural resources within both Lake Mead and the future site of Lake Mohave. Passed in 1964, the Lake Mead National Recreation Act officially added Lake Mohave to the Lake Mead NRA.

Located one mile upstream from the USGS Cable Number 17, Catclaw Cave is about fifteen miles downstream from Hoover Dam. The cave lies on the Arizona side of the Colorado River. Like much of the Colorado River Valley, Catclaw Cave exists in rough terrain. Today, it is only accessible by boat or foot following Jumbo Wash from Willow Beach, passing through Black Mesa and the Twin Peaks.

Located in the Lower Colorado River Valley and within the Black Canyon, Catclaw Cave is in the Colorado River's floodplain (Wright 1954). The Black Mountains parallel the Black Canyon to the east, which has an elevation of about 5500 ft, and the Blue Range to the west. Throughout its history, the Colorado frequently changed direction and course, resulting in many deeply entrenched intermittent washes throughout the Canyon (Wright 1954:5). There is evidence of a Pleistocene lake within the stratigraphy of the Canyon (Wright 1954:5).

Before Davis Dam's construction, the Colorado fell nearly five feet to the mile with varied water flow, especially during flood seasons (Wright et al. 2008; Wright 1954). Catclaw Cave was formed due to water erosion of the volcanic tuff breccia, producing a long shallow cave measuring 12.30 meters in width, 3.40 meters in height, and 12.40 meters in depth (Wright et al. 2008; Wright 1954). The cave sits at a higher elevation than the present arroyo (Wright et al. 2008; Wright 1954). The floor comprises interbedded silts, sands, gravels with consolidated rock, fall from the cave roof, and backfill from the archaeological excavation in 1949 (Wright et al. 2008; Wright 1954). Currently obscured by various plants, including creosote, the cave entrance exhibits evidence of animal habitation, including owls and rattlesnakes (see Figure 5). Wright recorded gravel deposits affected by erosion and a high bench feature composed of sand in the cave's rear (see Figure 6) (Wright et al. 2008; Wright 1954).

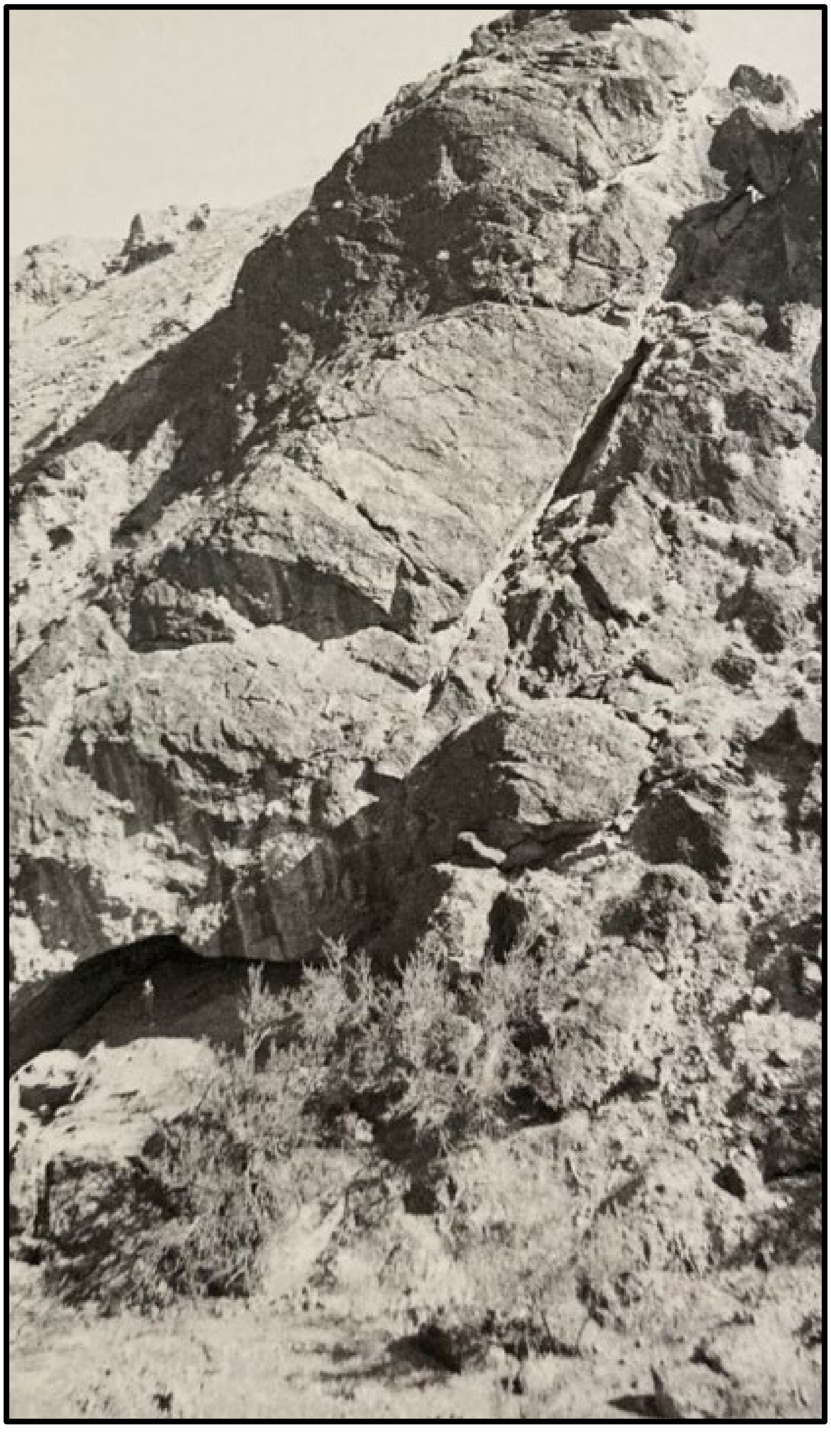

Figure 5: The entrance of Catclaw Cave prior to the inundation of Lake Mohave (Wright 1954:11, Plate 1a).

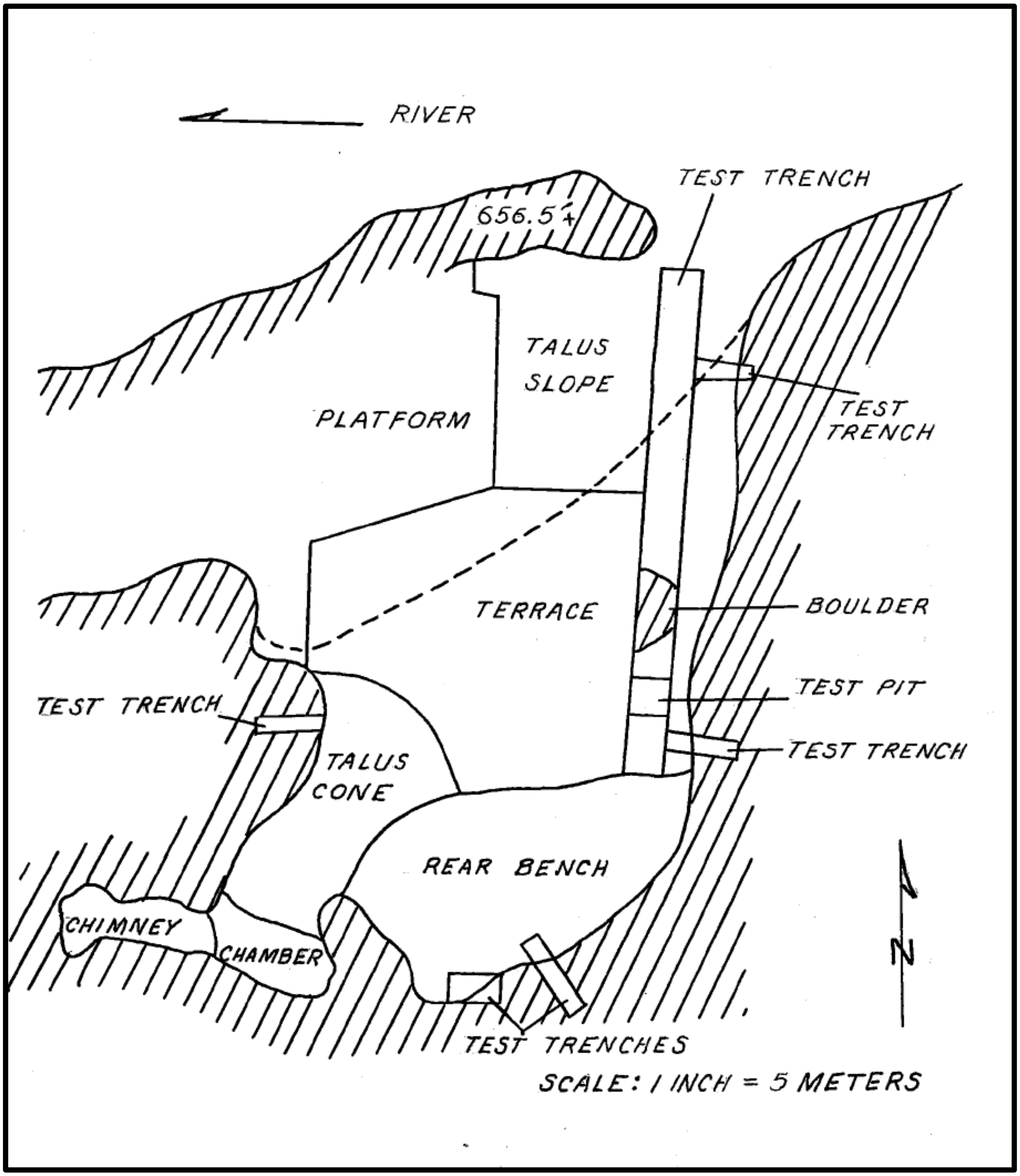

Figure 6: Wright's excavation notes showing the rear bench (Wright 1954:17, Figure 5).

Black Canyon and the Lower Colorado River Valley are part of an arid desert environment with an annual rainfall of five inches (Wright et al. 2008; Wright 1954). During the summer months, specifically in July, monsoons replenish the region, while light showers can sporadically occur throughout the year (Wright et al. 2008; Wright 1954). Little snowfall occurs in the valley, and almost no snow occurs in the inner gorge of the Canyon, but the peaks of the Black Mountains often receive a small amount of snowfall (Wright et al. 2008; Wright 1954). Temperatures in the region can reach upwards of one hundred and twenty degrees in the summer months and seldom fall below thirty degrees in the winter (Weather Channel 2021; Wright et al. 2008; Wright 1954).

The completion of Hoover Dam in 1936 and Davis Dam in 1952 ultimately changed the layout of the Canyon and the environment (see Figures 7 and 8) (NPS LAKE 2017). Engineers changed the landscape by diverting the natural river bed and stripping portions of the canyon wall in preparation for the construction of the Hoover Dam. The Colorado River was naturally warm and full of sediment, a rich environment for native fish such as the Humpback Chub, who thrived in the murky waters of the Colorado (NPS LAKE 2017). The completion of Hoover Dam led to the removal of the rich sediment in the water and reduced its temperature, creating a cold and clear reservoir (NPS LAKE 2017).

Initial preparations for the construction of a third dam along the Colorado River began in 1942; drilling and blasting of rock along the canyon walls and the subsequent excavation of materials was undertaken in the late summer (Schweigert 2008:3). The outbreak of World War II in early 1943 paused construction (Schweigert 2008:3-4; Pfaff 2003). In 1944, the United States signed a treaty with Mexico, ensuring water access to millions in Western Mexico (Reclamation 2016). Constructed nearly a decade earlier, Hoover Dam regulated flooding and generated large quantities of hydropower. However, the dam could not provide the strenuous water regulation needed to meet the stipulations outlined in the treaty (Reclamation 2016). Following the end of World War II, the Colorado River was diverted from the narrow Pyramid Canyon in order to facilitate the construction of Davis Dam (Schweigert 2008:4). Engineers stripped the canyon walls (Schweigert 2008). According to the Historic American Engineering Record (HAER), Davis Dam is “a rock and earth-fill gravity dam” comprised of nearby earthen material (Schweigert 2008:2; NPS LAKE 2022).

Additional impacts on the environment of Lake Mohave are evident from the fluctuation of the reservoir (see Figure 9). The destruction of the natural woodland habitat along the river corridor within the footprint of the Lake Mohave reservoir and the reduction of natural species such as Cottonwood and Willow have detrimentally impacted the ecology (Tallent et al. 2011). This change has created a new shoreline and introduced an environment more conducive to invasive species than native species (Tallent et al. 2011). The passage of the Endangered Species Act in 1973 and the subsequent listing of native species of the Colorado River system has led to changes in water regulation release and increased demands to meet ecological requirements for habitat conditions conducive for native species (Reclamation 2023).

Figure 7: The Colorado River before Hoover Dam was built (NPS LAKE 2017).

Figure 8: Construction at the Hoover Dam site, circa 1934 (NPS LAKE 2017).

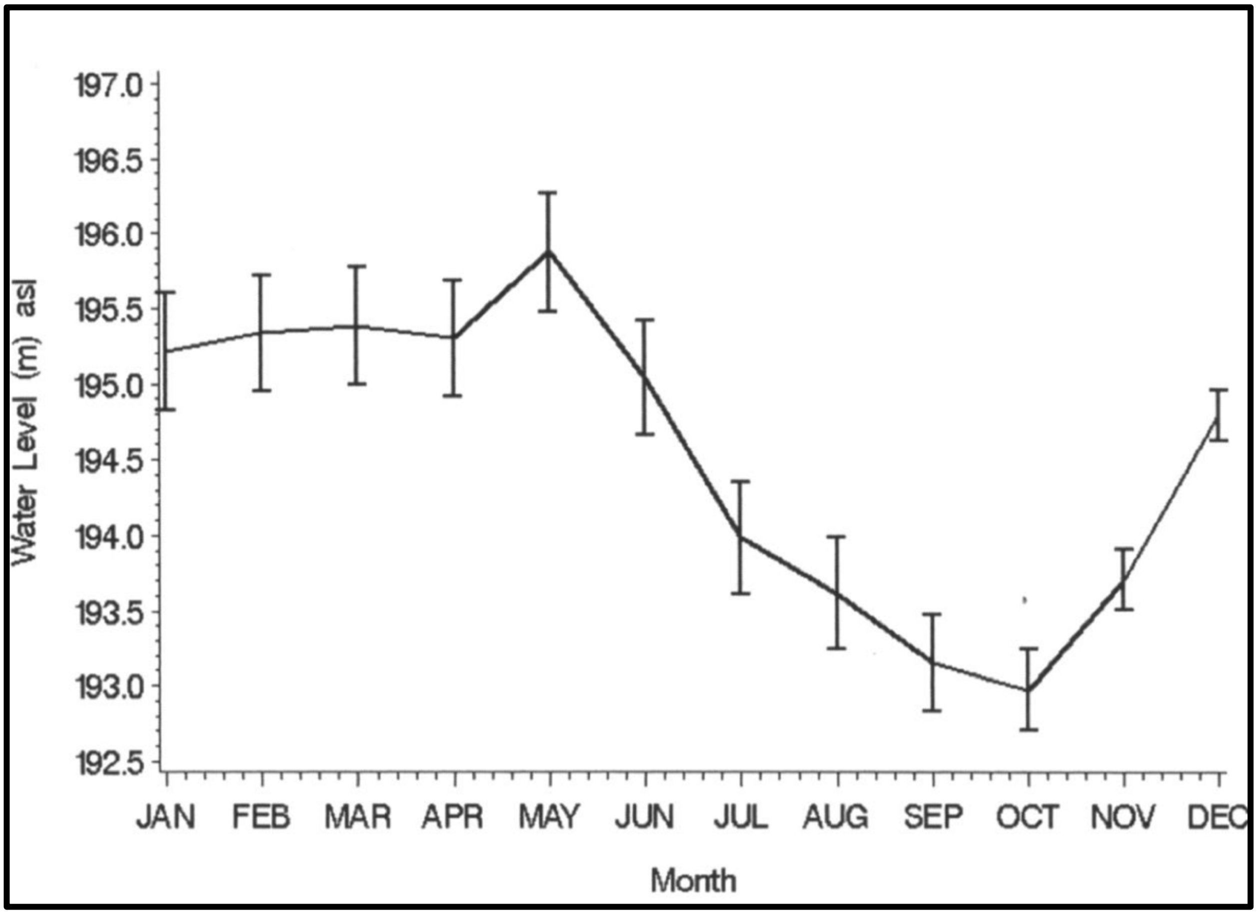

Figure 9: Hydrologic regime of Lake Mohave (1950-1970), this indicates when water levels are higher and lower (Tallent et al. 2011:377, Figure 2).

Archaeological Context

The 1949 excavations conducted by Barton Wright indicate that various cultural communities used Catclaw Cave, spanning around four or five thousand year (see Figure 10). Evidence of use from members of the Amargosa and Basket Maker II cultures is evident in five pre-ceramic levels. Wright found three ceramic levels within the cave, suggesting use by members of the Virgin Puebloan and Patayan groups during the Basketmaker II, Basketmaker III period phase (900-1150 A.D.) (see Figure 11) (Wright et al 2008; Schroder 1961; Wright 1954; Kroeber 1925).

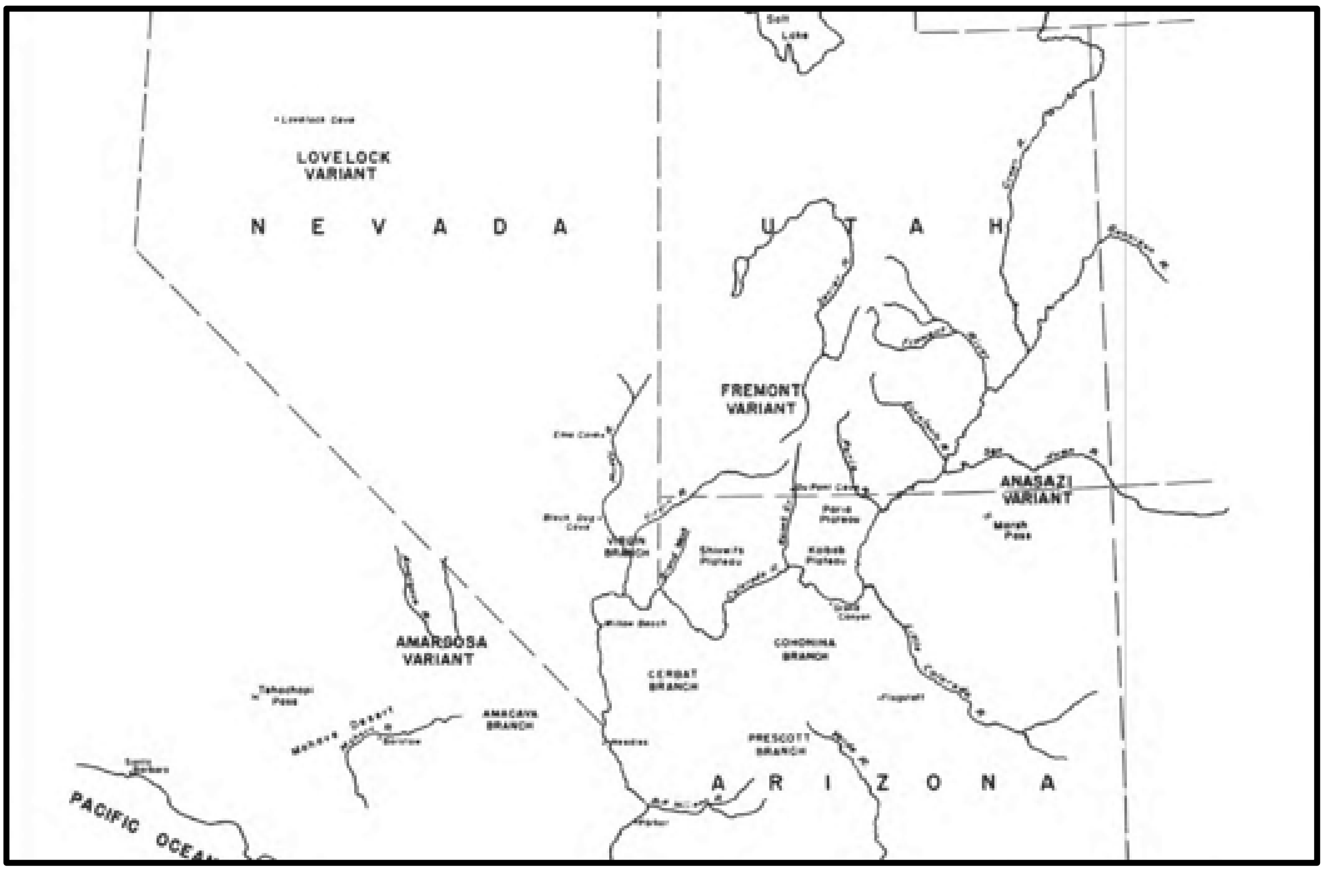

Figure 10: Cultural areas identified within the region (Schroeder 1961:160: Figure 37).

DATES	SOUTHERN GREAT BASIN SERIES	OWENS LAKE (Lanning 1963)	DEATH VALLEY (Hunt 1960)	MOJAVE DESERT (Wallace 1965)	COLORADO (Rogers 1939) cf. Pourade 1966:140	SOUTHWESTERN GREAT BASIN (Warren & Crabtree 1979)
Historic						
	MARANA	COTTONWOOD	DEATH VALLEY IV	PREHISTORIC YUMAN-SHOSHONEAN	PAIUTE, MOJAVE ETC. 1500......	PERIOD V SHOSHONEAN
				A.D. 1000		A.D. 1000............
A.D. 1300......	......	......	......			
				AMARGOSA PHASE II	PREHISTORIC YUMAN AND SHOSHONEAN GROUPS	PERIOD IV SARATOGA SPRINGS
	HAIWEE	LATE ROSE SPRING	DEATH VALLEY III			
				A.D. 500...........	A.D. 500......	A.D. 500 ....
A.D. 600........	......	MIDDLE ROSE...... SPRING	......	AMARGOSA PHASE I	PUEBLO II(?) BASKETMAKER III (?)	
			LATE DEATH VALLEY II	A.D.1	A.D. 1 .... AMARGOSA III(?)	PERIOD III
	NEWBERRY				B.C. 1000......	GYPSUM
1200 B.C......	......	EARLY ROSE ...... SPRING	......		B.C. 2000...... AMARGOSA II (Pinto-Gypsum)?	B.C. 2000 ....
	LITTLE LAKE	LITTLE LAKE	EARLY DEATH VALLEY II	PINTO BASIN	B.C. 3000......	PERIOD II
4000 B.C......	......	......	......			
				B.C. 5000............	Amargosa I(?) B.C. 5000.....	PINTO B.C. 5000............
	MOJAVE	(OWENS LAKE II)	DEATH VALLEY I	LAKE MOHAVE B.C. 7000............	6000..... 7000.....	PERIOD I LAKE MOJAVE
					SAN DIEGUITO II-III B.C. 8000.....	B.C. 8000 ....
					SAN DIEGUITO I ? B.C. 9000.....	HYPOTHETICAL PLEISTOCENE PERIOD ?

Figure 11: Comparative chronologies of the Mojave Desert (Stickel et al. 1980).

Patayan

The Patayan culture is ancestral to the historic and modern-day Yuman people. Archaeological records suggest the Patayan culture initially began in 700 A.D. and continued until 1900 A.D.; in fact, archaeologists identified three time periods associated with the Patayan culture: Patayan I (700-1050 A.D.), Patayan II (1050-1500 A.D., and Patayan III (1500-1900 A.D.) (Archaeology *Southwest* n.d.).

Greg Seymour of the University of Nevada Las Vegas (1997) and Aaron Wright (2020; 2021) of Southwestern Archaeology discuss Patayan culture in greater detail than past archaeologists. Initial research completed within the Lower Colorado River Basin focuses on the concept of Patayan culture, which consists of a confused and inconsistent history. The frequent overlapping and interchangeable terms utilized to describe the Patayan culture included the Hakataya (a now discontinued term) and the Yuman (a term typically used when distinguishing between pre-contact and post-contact groups) (Gladwin and Gladwin 1930) (Colton 1939; Euler 1958; Schroeder 1957; 1960; and McGuire 1983). Patayan culture may have pre-dated Yuman culture. However, archaeological sites attributed to the Patayan peoples do not always relate to the historical borders of sites and areas attributed to the Yuman peoples (Archaeology Southwest n.d.). These terms refer to the same peoples and artifacts which are indistinguishable. This thesis will use the term Patayan to discuss the people who lived (and continue to live) within the Lower Colorado River Valley. The Patayan peoples were removed from their traditional homelands and sent to reservations in modern-day eastern Arizona.

Patayan material culture is distinct and includes a variety of Lower Colorado Buffware ceramics constructed using paddle and anvil methods; Tizon Brownware ceramics; Salton Brownware ceramics (Wright 2020); Petroglyphs and Intaglios which depict animals, humans, and important shapes (American Southwest Virtual Museum 2015); farming practices along major waterways and fishing in coastal areas are major components of Patayan culture (Wright 2020).

Virgin Puebloan

The Virgin Puebloan, inhabiting primarily the Moapa Valley approximately 100 miles north of Catclaw Cave, is one of southern Nevada's most heavily researched archaeological cultures. Excavations in the Virgin and Muddy River Valleys between 1924 and 2011 have resulted in some of southern Nevada's best-preserved evidence of habitation. Ceramics discovered throughout Virgin Puebloan sites in southern Nevada have also been discovered at sites along the Lower Colorado River (Schroeder 1952). These studies have shown that the Virgin Puebloan people lived in that area between about A.D. 300 and 1250 when they disappeared from the archaeological record.

Material culture associated with the Virgin Puebloan includes a variety of black-on-gray ceramic designs including St. George Black-on-Gray, Sosi, and Dogoszhi ceramics (Harry and Perez 2019); woven baskets and sandals (Archaeology Southwest n.d.); and pueblo structures such as pit houses (Archaeology Southwest n.d.).

Hohokam

The Hohokam, often referred to as the “desert farmers” of the American Southwest,” are ” primarily located within the Sonoran Desert of Arizona within the Gila and Salt River basin drainages (Gumerman and Haury 1979). Archaeological evidence suggests the Hohokam culture began around 450 A.D. and lasted until around 1450 A.D. Hohokam cultural periods are defined by two chronological timelines, the Pre-Classic Period (450-1150 A.D.) and the Class Period 1150-1450 A.D. (Arizona State Museum n.d.) The Hohokam established extensive canal systems to irrigate crops throughout the Gila and Salt River drainages. Damming along the Colorado, Gila, and Salt River basin drainages severely impacted the environment.

Hohokam material culture frequently includes irrigation infrastructure such as canals (Archaeology Southwest n.d.); ballcourts and large villages (Archaeology Southwest n.d.); and created Hohokam buffware ceramics which can include use of red pigment and geometric designs (Archaeology Southwest n.d.; Southwest Virtual Museum 2015).

Southern Paiute

The Southern Paiute initially migrated from the Great Basin and eastern Mojave Desert, specifically portions of central and Northern Nevada. However, it seems likely that Paiute bands frequently ventured into the Lower Colorado River Valley long before the group officially migrated south. While there is no exact date in which the Southern Paiute arrived in the region, oral traditions suggest Paiute peoples have lived in southern Nevada since 1000 A.D., and archaeological evidence suggests members of the Southern Paiute migrated into southern Nevada after 1300 A.D (Clark 2010; Deur 2011). Southern Paiute groups in Southern Nevada formed friendly relationships with the Western Shoshone, adopting traditional dances and evidence of intermarriage and economic cooperation, compared to often difficult relations with nearby the Ute and Navajo peoples (Kelly and Fowler 1986).

Material culture associated with Southern Paiute groups include temporary structures (Wikiups) built with brush (Dixie National Forest n.d.); basketry and ceramics (Dixie National Forest n.d.); as well as clothing such as moccasins (Dixie National Forest n.d.).

Ethnographic Context

According to ethnographic accounts, the surrounding area, including Catclaw Cave, was part of the traditional lands of the Mohave people, which members of the Chemehuevi occupied or used with the permission of the Mohave (Wright 1954; Kroeber 1925). Tribal communities with ties to the northern portion of the Lower Colorado River, either through habitation, trade, or geographic distance, are discussed in this chapter.

Hualapai

The Hualapai people reside in modern-day eastern Arizona, following their removal from traditional lands throughout the Lower Colorado River Valley. The Hualapai met various European explorers and missionaries but did not experience direct contact with the Spanish until 1776, when the Franciscan missionary Francisco Garcés arrived, hoping to expand his mission into Hualapai territory (McGuire 1983). He died in 1781. Following Garcés's death, the Hualapai maintained their traditional territories in the Lower Colorado River Valley for another 70 years (McGuire 1983). In the 1850s, the United States Military began explorations throughout northern Arizona. Around 1866, war broke out between the U.S. Military and the Hualapai following the murder of a Hualapai leader (McGuire 1983). A second Hualapai chief was killed, leading to additional retaliation against mining camps and settlers in the region (Hualapai 2014). The war ended in 1869 with Hualapai defeat and interment at Camp Beale Springs and later the reservation at La Plaz on the Colorado River Indian Reservation (McGuire 1983). Additional research identifies the Grand Canyon as part of the traditional homelands of the Hualapai peoples (Hualapai 2014).

Chemehuevi

The Chemehuevi recently moved to the Lower Colorado River Valley following the upheaval in the Great Basin during the migration of the southern Paiute in the late 16th century. This migration may have been in response to significant changes in the Great Plains and Columbia Plateau, where horses allowed tribes such as the Blackfeet to travel quickly and easily into territories they traditionally did not hunt. Generally, archaeologists attribute this migratory response to post-contact settlement of the Caribbean, modern-day South America, modern-day Mexico, and modern-day California. The Chemehuevi were allowed to live within the Lower Colorado River Valley and utilize Catclaw Cave by the Mojave peoples throughout the region (Schroeder

1952; Kelly and Fowler 1986). Ethnographic documentation compiled in consultation and collaboration with the Twenty-Nine Palms Tribe in 2015 recognizes the traditional homelands of the Chemehuevi, which encompasses eastern California, southern Nevada, southern Utah, and western Arizona (Trafzer 2015:18). Intermarriage between members of the Chemehuevi and Colorado River peoples, including the Mojave people, is noted in ethnographic accounts (Trafzer 2015:29).

Mojave

The Mojave traditionally resided in modern-day southern California throughout the Mohave Desert. The Mojave peoples were part of a vast trade network and traded frequently with the Patayan peoples of the Lower Colorado River. Migration of the Southern Paiute into modern-day Southern Nevada caused significant upheaval and saw several Patayan tribes move east towards the Hohokam and Puebloan people (Schroeder 1952; Stewart 1983). The Southern Paiute were not interested in the same trade materials and routes as the Patayan. Thus, the Mojave moved east into the Lower Colorado River Valley to re-establish trade networks with tribal communities in Arizona (Schroeder 1952; Stewart 1983). Later migration of the Mojave further southeast into the heart of the Lower Colorado River Valley may have also been related to the establishment of European missions throughout coastal California, further segregating trade networks and relations with Indigenous people in southern California (Schroeder 1952; Stewart 1983). The Mojave peoples have utilized Catclaw Cave while residing in the Lower Colorado River Valley; they granted permission for the Chemehuevi to use the cave and live in the river corridor following their displacement from migration of other Tribes within the Great Basin and Columbia Plateau (Schroeder 1952). Additional research suggests that traditional homelands of the Mojave included the lands inundated by Lake Mohave in 1953, stretching as far south as Needles, California (Weber and DeBuys 2017:158). While the Mojave are portrayed in ethnographic accounts as fierce warriors, initial accounts recorded by Europeans identify the Mojave as a kind and hospitable people (Weber and DeBuys 2017:158). Initial contact is thought to have occurred in 1604, when Juan de Oñate traveled to the Bill William's Fork of the Colorado River (Weber and DeBuys 2017:158). Spanish conquistadors suggest internal conflict between the Hualapai and the Mojave peoples (Weber and DeBuys 2017:158). By 1826, fur traders began encroaching on Mojave territory looking for beaver, recorded their experiences with the Mojave peoples (Weber and DeBuys 2017:162-166). While early encounters between fur traders and Mojave peoples throughout the region were cordial, intense disputes and violence created a hostile environment and significant distrust and disgust of American settlers (Weber and DeBuys 2017:167)

Hopi

The Hopi are modern-day descendants of the ancient Puebloans and are part of the Uto-Aztec language group (Cvorovic and Coe 2022:167). Traditional stories discuss the migration of Hopi groups from the south into modern-day Arizona. Located within the Navajo Reservation in Arizona, the recognized Hopi reservation exists as a separate reservation. However, a small community of Hopi members resides within the Colorado River Indians Tribe reservation along with members of other tribes whose traditional homelands also encompass the Colorado River Valley (Brew 1979; Dockstader 1979; and Clemmer 1979). Initial encounters between the Spanish and Hopi peoples are documented the accounts of Francisco Vasquez de Coronado’s 1540 expeditions into the region (Cvorovic and Coe 2022:168). Additionally, in 1629, the arrival of Spanish missionaries further impacted the Hopi people and the traumatic destruction of sacred ground and sites such as kivas as well as the enslavement of Hopi people resulted in the Pueblo Revolt (Cvorovic and Coe 2022:169).

Tohono O’odham

The Tohono O’odham is believed to be a modern descendant of the Hohokam. Tohono O’odham traditional territory, called Papagueria, includes land south towards Sonora, Mexico, north towards central Arizona, west to the Gulf of California, and east to the San Pedro River. Following contact with Europeans in the 16th century, Tohono O’odham fell under Mexican Rule in the early 18th century following Mexican independence from Spain. In 1854, traditional Tohono O’odham territory became divided between the United States and Mexico following the Gadsden Purchase. The modern-day borders of the United States and Mexico have resulted in the division of not just Tohono O’odham territory, but the separation of the tribe into four federally recognized communities, including the Gila River Indian Community, the Ak-Chin Indian Community, and the Salt River Indian Community (Tohono O’odham 2016).

A History of Lower Colorado River Archaeology

The 20th century saw the excavation of some of the most important archaeological sites in the world, the Valley of the Kings and the recovery of King Tut in Egypt, the discovery of Sutton Hoo in England, and the discovery of Machu Pichu in Peru all increased the popularity of archaeological adventures. Enamored curiosity with archaeology expanded beyond the Hollywood screens to capture government officials and everyday American imagination. Determined to compete with the discoveries of ancient peoples and civilizations in Europe, North Africa, and the Middle East, Euro-Americans undertook archaeological excavations throughout the United States. These archaeologists, now considered antiquarians by many in the archaeological discipline, selected the best-preserved materials, unfortunately often including human remains and funerary items in their collection, for display in museums across the country and the world.

Nevada Governor James Schrugam was an avid supporter of archaeological excavations throughout the state, inviting Mark Raymond Harrington, an archaeologist from the Heye Foundation in New York, to excavate at Lovelock Cave in Northern Nevada in the early 1920s (Harrington 1925). In 1924, Schrugam received information from residents of St. Thomas in southern Nevada regarding ancient ruins known as the Lost City complex, an ancient Virgin Puebloan settlement near the Muddy-Virgin River convergence (see Figure 12). Schrugam and Harrington surveyed the Lost City complex and began preparations for excavations following the completion of work at Lovelock Cave (Harrington 1927).

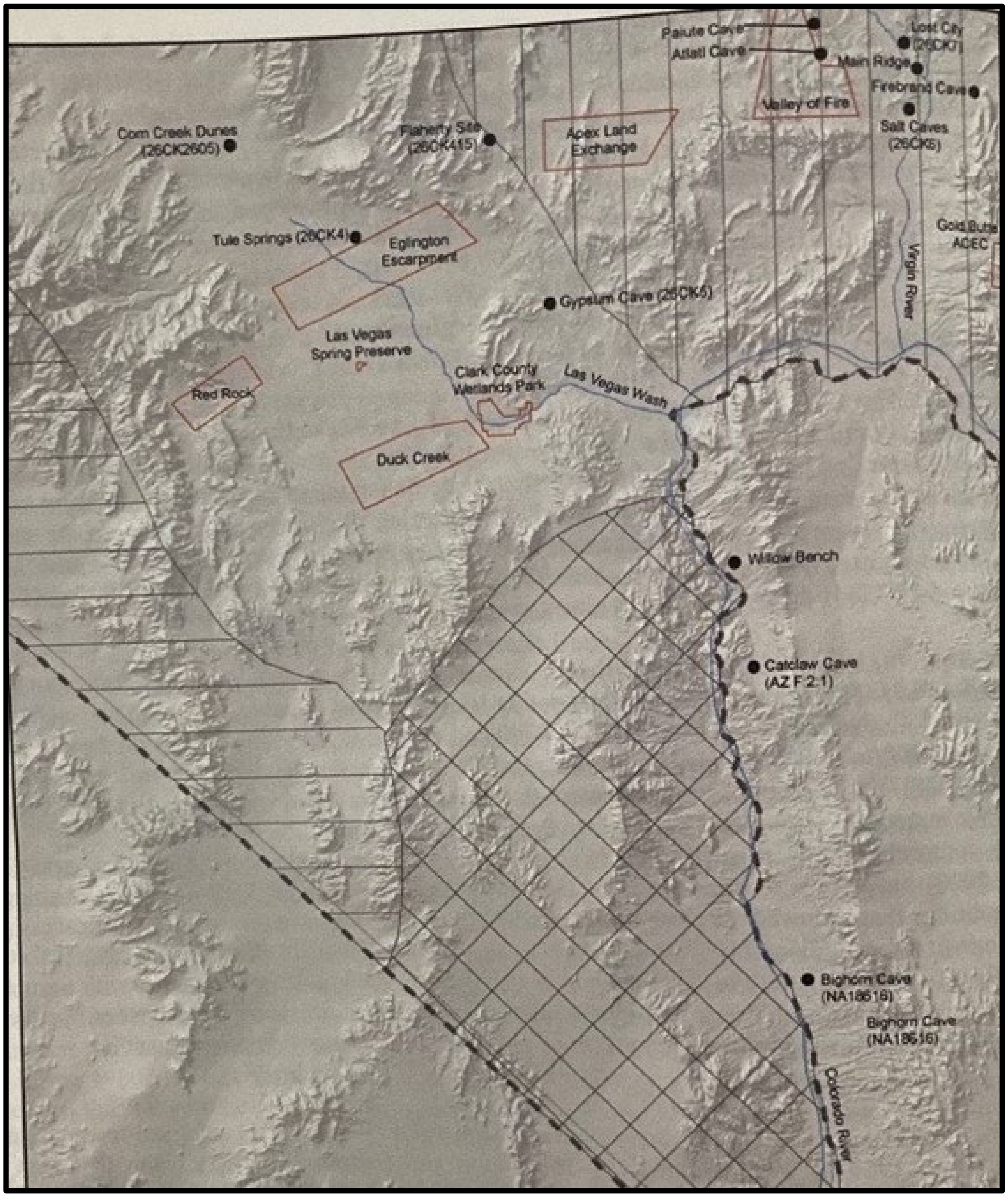

Figure 12: Location of the Lost City and other archaeological sites in the region (Roberts et al 2012).

As a Heye Foundation team member, Harrington excavated at Lost City from 1925 until 1927. By 1928, Harrington had left the Heye Foundation for a position as curator of the Southwest Museum of Los Angeles in California, and in 1933 he joined the NPS LAKE and the Civilian Conservation Corps in salvage excavations of Lost City (see Figures 13 and 14) (Harry 2008). During the 1933 excavations at Lost City, Harrington also traveled to Willow Beach to supervise ongoing salvage excavations.

The first archaeological investigations of the Willow Beach site began with the Civilian Conservation Corps under Harrington's direction in 1936. Located about 11 miles downstream of Hoover Dam, excavations at Willow Beach resulted in the re-discovery of nine-hundred and twenty-seven specimens, six human burials, and one dog burial (Harrington 1937:86-69; Schroeder 1961:iii). Harrington attributed a majority of the assemblage to Puebloan cultures (Schroeder 1961:iii). The completion of Hoover Dam and Lake Mead's inundation in 1935 ended the salvage excavation of Lost City and subsequently Harrington's excavations at Willow Beach (Schroeder 1962).

In 1943, NPS LAKE began archaeological surveys of the river between Hoover and the proposed Davis Dam site under the direction of park archaeologist Gordon Baldwin (1943). Because of the rugged terrain, Baldwin and his crew boated down the river, stopping to record visible archaeological sites and investigate areas with potential (Baldwin 1943). After completing archaeological surveys of the river, Baldwin undertook additional "test "excavations at the Willow Beach site between 1947 and 1948. Baldwin identified evidence of stratigraphy at the site, but notes that lines were frequently indistinct, “due mainly to the soft sand and ash contents of the deposits” (Baldwin 1948:67 and 70; and Schroeder 1961:iii).

In 1950, under the direction of NPS LAKE archaeologist Albert Schroeder, additional and substantial excavations at Willow Beach yielded large quantities of ceramic sherds (Schroeder 1961). The 1950 assemblage recovered from the site formed the basis for Schroeder’s ceramic typology of the Colorado River (Seymour 1997). The ceramic typology developed by Schroeder directly conflicted with the ceramic typology developed by Malcom Rogers of the San Diego Museum of Man, creating a convoluted and confusing ceramic typology series that continues to impact archaeological research and interpretation throughout the Lower Colorado River valley (Seymour 1997; A. Wright 2022).

Figure 13: *Harrington and the excavation team at the Lost City, 1930s (US Bureau of Reclamation, UNLV Special Collections 2022).*

Figure 14: Members of the Civilian Conservation Corps excavating at the Lost City site (Roberts et al. 2012).

Previous Work at Catclaw Cave

Located 28 miles downstream from Hoover Dam on the Arizona side of the river, archaeological work at Catclaw Cave began unofficially and without permit from NPS LAKE. The initial proposal submitted to the NPS LAKE office in Santa Fe, by Wright, details the initial discovery of Catclaw Cave and the investigations undertaken by Wright prior to 1949 (Wright 1948). In the winter of 1940, three prospectors encountered the site, removing a horn spoon (made from faunal materials belonging to a mountain sheep), clay figurines (the NPS LAKE museum in Boulder City curated one of these items), and a medicine bag containing a tightly wadded mass of cordage with paint, feathers, figurines, and small faunal bones (the medicine bag may be at the Milwaukee Museum or the Smithsonian) (Wright 1948).

There is no record of additional investigations conducted at Catclaw Cave until 1946, when Wright and two additional people surveyed the site. During a survey of the cave in 1946, Wright recovered a seed jar, hematite paint, large quantities of twine, and fragmentary figurines; curated by the NPS LAKE museum in Boulder City (Wright 1946). Wright returned to the site in 1948, recovering an atlatl bow, fiber cordage, buckskin tanned leather, grass, gourd rinds, turquoise, chalcedony graver, and a bone awl fragment; the NPS LAKE museum in Boulder City curated these items as well (Wright 1948).

Official permitted salvage excavations began in 1949. Wright and his friends from the Point of Pines archaeological field school conducted one of only three salvage excavation operations within the LAKE boundaries. The vast assemblage included unfired clay figurines and various ceramic sherds recovered from Catclaw Cave suggest Indigenous people from various communities used the cave intermittently through time (Wright 1954).

Following excavations in 1949, Barton submitted a preliminary report to NPS LAKE detailing his excavation methods, plans, recovered artifacts, and identified features. He reported that a test trench was put through the foot of the talus slope in front of the cave reaching to a sterile bench in the rear of the cave (Wright 1949). The test trench allowed Wright to identify cultural materials within six meters, though due to the risk of collapse, excavations of the cave floor did not occur (1949). Backfill of the excavated areas includes the original cave sediments (Wright 1949).

Wright and his team identified three structures within Catclaw Cave; roughly 25 pits ranging from .12 meters to 1 meter in dimeter and .05 meters to .42 meters in depth. The excavation uncovered 4 pits comprised of grass, 4 hearths, and 1 rock filled features. Wright recorded roughly sixteen hearths, the longest of the identified pit hearths was 1.02 meters wide. One lodge was identified in the back of the cave by a small plastered-like floor measuring 1-meter by 1.02 meters with four postholes and two rock lined disclosed at the front of the sterile bench (Wright 1949).

The assemblage recovered by Barton and his team, in the 1949 excavations, included 1,078 sherds of ceramic and twenty-four unfired clay figurine fragments, seven believed to resemble the Virgin basin figurines (see Figure 15). Some of the recovered sherds include decorations made with incising and painted decorations. The excavation included stone tools such as one complete metate and a single-handed mano.

Additional artifacts included, Leaf-shaped knives, projectile points, use-flake scrapers, and a turquoise bead. The assemblage includes four Olivella shell beads. Wright recovered four distinct types of basketry: a 7-rod foundation, a 5-rod foundation, a stitched bundle foundation with a 0.02m diameter, and an interlocking stitch bundle foundation (Wright 1949).

Figure 15: The crew cataloging artifacts during the 1949 excavation, from left to right, Rex, Barton, and Bryan (Wright et al 2008:30, Figure 11).

The NPS LAKE museum misplaced the two figurines, sandal fragment, and a seed jar recovered in 1948 (Wright 1949). Wright suggests that the occupation of Catclaw Cave occurred seasonally or for a short time, as the northern exposure of the cave may have influenced its occupation (Wright 1949). Additionally, he notes that the decorative and ceremonial items recovered from the cave were common as the utilitarian artifacts suggesting the cave had a specific use. Within his conclusions Barton suggested the occupation of the cave was represented primarily by the Payatan culture. Wright does not discuss these initial conclusions in detail in his thesis report submitted in 1954. Wright compares Catclaw Cave to two sites in his in-depth discussion of the excavations in his thesis; the Lost City archaeological excavations and the Willow Beach excavations. At the time of the Catclaw Cave excavations, no reliable ceramic typology existed, and Wright relied heavily on the information revealed in Schroeder's excavations at Willow Beach (Wright 1949; 1954).

In 2005 Reclamation and NPS LAKE began conducting condition assessments under the National Historic Preservation Act of 1966, Section 110. Returning to Catclaw Cave in 2005, Reclamation archaeologists observed several potential looters and increased vegetation near the cave entrance (see Figure 16) (Wright et al 2008).

Increased interest in the site occurred upon the publication of Wright's thesis by the Arizona Archaeological Society in 2008 (Wright et al 2008). In a renewed effort to locate the Catclaw Cave assemblage, archaeologists with NPS LAKE, Reclamation, and the Arizona Archaeological Society attempted to update the location records of the assemblage (Wright et al 2008). Unfortunately, only the artifacts housed at the Museum of Northern Arizona (MNA) were found (Wright et al 2008). In 2011, Amy Gilreath and Kasey O'Horo a re-analysis of the Catcalw Cave collection in association with their report entitled, "Improving the Prehistoric Chronology for Southern Nevada". An" updated catalog of the collection housed at MNA was produced, including four boxes of uncatalogued and unaccessioned artifacts recovered from the site (Gilreath et al 2011).

In 2021, archaeologists from Reclamation and the University of Nevada, Las Vegas conducted a site condition assessment of Catclaw Cave, noting deterioration from water damage and seepage as well as an increase in vegetation because of the lack of visitation to the site (see Figure 17) (Reclamation 2021). Another condition assessment completed by archaeologists with the Reclamation in April of 2022 resulted in the discovery of extreme disturbance and deterioration from the high-water levels in Lake Mojave. Exposure to wave action and flooding within the entrance to the cave has continued to impact lithic and ceramic artifacts left in the backfill of the 1949 excavation.

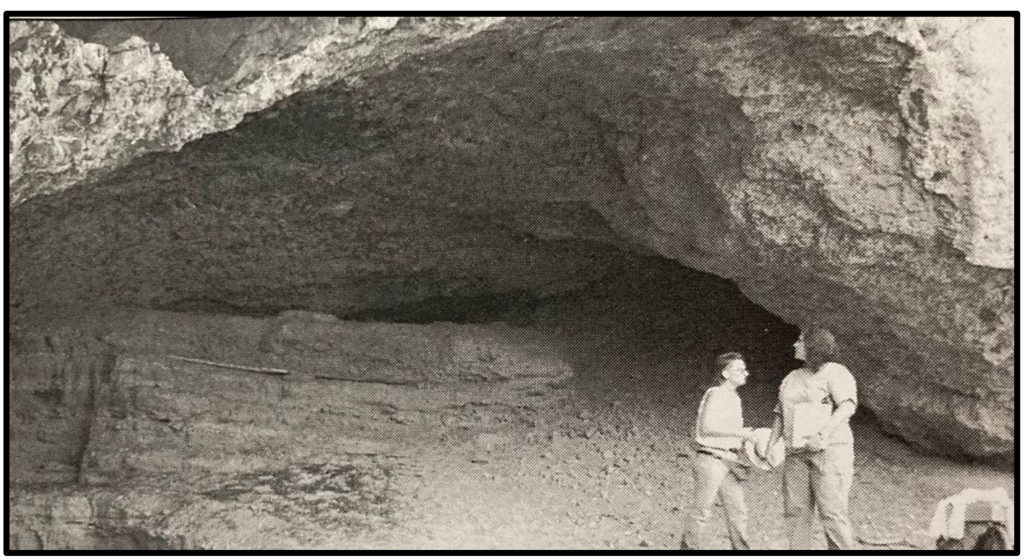

Figure 16: Reclamation archaeologists at the Catclaw Cave Site in 2005 (Ferg et al. 2008).

Figure 17: Entrance to Catclaw Cave 2021 (Swett 2021).

Catclaw Cave: An Approach to Museum Based Archaeological Research

Museum-based archaeological research has proved successful in advancing theories and understanding of the archaeological material records (Plog et al 2015). Huge issues in collection consolidation have been identified through Museum-based archaeological research and can help consolidate collections from singular sites currently housed across the country in varying repositories (Plog et al 2015). Museum-based archaeological research can also repair the relationships between archaeologists and indigenous and descendant communities through collaborative research (Plog et al 2015).

A majority of the recovered archaeological material from the Colorado River Valley is part of a phenomenon museum specialists and curators deem split collections, meaning various repositories and museums across the country house bits and pieces of the collection (Department of the Interior 2008). Split collections make researching past archaeological sites incredibly difficult and can often result in lack of access to sacred or traditional objects for members of Indigenous and descendant communities.

Barton Wright undertook preliminary analysis of hundreds of fish bones, corn cobs, ceramic, lithic, groundstone, bone tools, and perishable materials such as sandals. Wright sent a majority of the perishable and non-ceramic materials to experts around the country for detailed analysis. However, unfortunately mainstream practices in the mid-20th century meant experts would often keep parts of the analyzed excavation material for their own collections.

Luckily 80% of the material recovered from Catclaw Cave has been relocated during the past 72 years, and mandates issued by the Department of the Interior have required federal agencies to consolidate their collections in order to reduce the federal government's foot print (Department of the Interior 2008). The Catclaw Cave collection is an example of a split collection.

In 2021, MNA, the University of Michigan, the University of Arizona, Harvard University, Reclamation, and the NPS LAKE repository all housed portions of the Catclaw Cave Assemblage. The University of Michigan, MNA, and the NPS LAKE repository curated portions of the collection in 2023.

The purpose of this thesis research is to re-analyze artifacts recovered from Catclaw Cave in 1949 to better determine use and habitation of the Lower Colorado River Valley before contact in the 16th century, utilizing museum-based archaeological approaches that promote collaboration between museums, researchers, and federal agencies.

Chapter 3: Research Design

Research Questions

Barton Wright's 1954 thesis describes the artifacts recovered from Catclaw Cave, but he does not fully interpret them or the use of the site itself. Catclaw Cave is one of only two excavated archaeological sites below Hoover Dam and above Davis Dam, making the site incredibly important to understanding the Lower Colorado River Valley habitation before contact with Europeans.

While Barton discusses potential uses of the Catclaw Cave site in his preliminary reports following fieldwork in 1949, he does not record these initial observations in his 1954 Masters' Thesis or the 2008 publication of his thesis by the Arizona Archaeological Society (Wright 1948; 1949; 1954; and Wright et al. 2008). This research project attempted to answer the following questions;

Question 1: What did Indigenous Peoples use Catclaw Cave for?

a. What activities are suggested by the archaeological assemblage?

   i. Do these activities suggest use of the cave to target specific resources or activities (such as fishing) or were a wide-range of activities carried out at the site?

b. What does the diversity of the tool assemblage suggest about the intensity of use?

   i. Was it likely occupied on a short-term basis by members of a specific task force, or were larger, family groups likely camping out for extended periods of time?

c. Can the faunal assemblage inform on the likely season(s) that the cave was used?

i. Can the faunal assemblage identify hunting practices?

<u>Question 2: How does the Catclaw Cave assemblage compare to other artifact assemblages from the Lower Colorado River Valley?</u>

a. What do these data suggest about the nature of Patayan occupation on the Lower Colorado River?

b. How does the recovered ceramics compare to those ceramic assemblages recovered from the Bighorn Sheep Cave, Cave Du Pont, and Snaketown archaeological sites?

c. How does the recovered lithics compare to those lithic assemblages recovered from Willow Beach, the Lost City, and the Las Vegas Wash?

d. How does the recovered botanical specimens compare to those recovered from the North Stallend and Boas archaeological sites?

<u>Question 3: What trade networks are indicated by the artifact assemblage from Catclaw Cave?</u>

a. Does the ceramic assemblage indicate trade between Patayan peoples, Virgin Puebloan peoples, and Hohokam peoples?

b. Does the lithic assemblage indicate trade between Patayan peoples, Mohave peoples, and Southern Paiute peoples?

<u>Question 4: What cultural groups used Catclaw Cave?</u>

a. Does this change over time?

b. What cultural groups are represented in the lithics assemblage?

c. What cultural groups are represented in the ceramics assemblage?

d. What cultural groups are represented in the botanical assemblage?

<u>Question 5: Why are there such wide variations in the reported occupation dates of the site?</u>

a. Why does Wright assume use of the site is contemporary with the Virgin Branch occupation in Lost City?

a. How does his interpretation of the ceramic assemblage impact the initial dating of the site?

b. What is the implication of Gilreath's AMS dates, which suggests habitual use of the site nearly 200 years after the "end" of the Virgin Branch occupation in Lost City?

a. How can this implication be reflected in re-analysis of the ceramic, lithic, and botanical assemblages?

Data Sources

This thesis project utilized three data sources; the first and primary data source was Wright's 1954 thesis based upon the 1949 excavations at Catclaw Cave; the second was the analysis of the collection completed by Amy Gilreath for the Reclamation in 2011, and the third was the collection housed in the MNA, the Reclamation, and the NPS LAKE. This section will discuss each data source in detail and identify the number of artifacts recovered from Catclaw Cave in 1949, analyzed in 2011, and recorded during this project in 2022.

Barton Wright's Thesis (1954)

While Wright reports on a diverse artifact assemblage recovered from Catclaw Cave in 1949, in most cases, he does not provide exact counts of the artifacts collected (see Table C1). Few exceptions are identified within the 1954 Thesis, specifically the ceramic assemblage in which he counts each sherd in relation to ware type. Wright does not interpret the artifacts recovered from Catclaw Cave, apart from the fish remains identified which were examined and interpreted in detail in his 1954 Thesis and subsequent publication with Robert Miller in 1955.

For Fifty-Four years, the Catclaw Cave assemblage laid dormant until the Arizona Archaeological Society, under the direction of Al Ferg, published Wright's 1954 thesis with additions to his work. The 2008 publication (Wright et al. 2008) includes a list of artifacts recovered from Catclaw Cave between 1940 and 1949, while the 2008 publication identifies the type of artifacts recovered and the last known location of each portion of the assemblage, the document does not include counts of the recovered artifacts (see Table 1). Additional insertions in the 2008 publication include a copy of the 1955 paper completed by Miller and Wright on the fish remains recovered from Catclaw Cave, the 1956 paper completed by Hibbard and Wright on the Pleistocene Bighorn Sheep fossil recovered from the site, and photographs and letters pertaining to the 1949 excavation.

Gilreath and O'Horo (2011)

In 2011, the Reclamation contracted Amy Gilreath and Kasey O'Horo to complete a report entitled *Improving the Prehistoric Chronology for Southern Nevada.* While Gilreath and O'Horo selected ten artifacts from Catclaw Cave for radiocarbon dating, they also compiled an updated catalog of the artifacts within the MNA collection. Gilreath cursorily examined the collection and reviewed the collection reported by MNA compared to the collection reported in Wright's thesis, including four additional boxes of materials that had not been accessed or cataloged from the site (Gilreath et al. 2011).

Upon review of the materials housed at MNA, Gilreath states that the collection "retains good integrity" (Gilreath et al. 2011:50). However, Gilreath notes that several key artifacts reported in Wright's thesis are missing from the MNA collection (Gilreath et al. 2011:50). The catalog compiled by MNA prior to 2011 did not include any feature specific information, making it difficult to identify whether artifacts were associated with any one of the reported features excavated in the "Terrace" layer (Gilreath et al. 2011:54).

Table 1: Disposition of Artifacts in 2008 (Adapted from Wright et al 2008:8).

Artifact	Location
1940: Spoon of Bighorn Sheep Horn	1949: Private collection, Las Vegas
1940: Clay Figurine Fragments	(1) deposited in Boulde City NPS Museum, misplaced August of 1949; others unknown
1940: Meidicine Bag	1949: Private Collector, may have been donated to the Milwaukee Public Museum or the Smithsonian
1946: Seedjar sherds and seeds, hematite, twine samples, figure fragment	1949: Boulder City NPS Museum, misplced August of 1949
1948: stick with barrel cactus thorn attached, twine samples, buckskin, gourd rinds, turquoise nodule, graver, awl tip	University ofMichigan Ann Arbor
1949: Corn specimens	Harvard University
1949: botanical specimens	University ofMichigan Ann Arbor
1949: Fish bones	University ofMichigan Ann Arbor
1949: non fish, non fossil bones	Presumed University ofMichigan Ann Arbor
1949: Ovis catclawensis	University ofMichigan Ann Arbor
1949: Human Mandiale and tooth	Mandible Unknown, Museum of Northern Arizona
1949: excavated materials, prelimary reports, weekly reports, correspondance	Museum of Northern Arizona
1949: Photographs andLetter	Arizona State Museum
1949: Photographs, negatives, correspondance	Barton Wright

During re-analysis, Gilreath identifies “1,000 or more sherds, no more than ten projectile points, coiled basketry, Figure-8 sandals and unfired and sometimes painted clay effigy/figurines” (Gilreath et al. 211:54). As these specific artifacts contribute to the understanding of chronology at the site, Gilreath’s report focuses heavily on these items as they can provide a glimpse into when use of predominately occurred Catclaw Cave. According to Gilreath, the ceramic assemblage was analyzed prior to the 2011 report, though there is no record of who compiled the ceramic ware types identified in the collection (Gilreath et al. 2011). Gilreath reports a different pottery assemblage than what Wright identifies in his 1954 thesis or in the 2008 publication (see Table C2) (Gilreath et al. 2011).

MNA (2022)

The final data source utilized during this project includes the artifacts cataloged and housed at the MNA (MNA) in 2022. Artifacts identified within the MNA catalog were the only artifacts reported on by the NPS LAKE (NPS) and the only artifacts to contain NPS specific catalog numbers. Curators with MNA identified ceramics, lithics, basketry, faunal, and botanical specimens recovered from Catclaw Cave (see Table C3).

Catclaw Cave Collection (2022)

In order to begin this thesis project, the Catclaw Cave assemblage had to be recovered from an unknown number of institutions. As of fall of 2021, the NPS LAKE only had knowledge of the collection housed at the MNA in Flagstaff and the fossil of a Big Horn Sheep housed at the University of Michigan, Ann Arbor. Harvard University, the MNA, the University of Arizona, Arizona State University, the University of Michigan, the Amerind, and the Museum of Us (formerly the Museum of Man, were all contacted regarding the Catclaw Cave assemblage. Only the MNA (MNA), the University of Michigan (Michigan), the Reclamation, and the Amerind had portions of the Catclaw Cave assemblage. As a result of this project, the missing botanical assemblage was recovered, cataloged, and accessioned by the author. The author visited MNA and the MNA NPS LAKE Repository, assemblages identified at the Amerind and at Michigan were sent via mail to the NPS LAKE Repository in June of 2022.

Since 1954, portions of the faunal and botanical assemblage had been missing. As a result of this project, the botanical assemblage was recovered and the collection housed at MNA was reviewed in comparison to the artifacts identified in Wright’s thesis. Portions of the groundstone, thought to have been curated at MNA, were missing from the assemblage and an abundance of ceramic sherds were identified at MNA that were not reflected in Wright’s thesis or preliminary report. This project examined knives, scrapers, debitage, ceramic figurines, ceramic rim sherds, ceramic sherds, worked faunal bone tools, botanical strings, sandals, and corn cobs (see Table C4).

Methodology

The proposed methodology was constructed to account for restrictions placed on laboratory access due to the novel coronavirus pandemic. In order to identify the use of Catclaw Cave, I conducted use-wear analysis on the groundstone artifacts using a Dino-Lite USB Microscope to photograph lithic surfaces, which is a non-destructive technique. USB Dino Lite Microscopes are frequently utilized in the “low powered approach" often used to detect ware patterns resulting in changes to lithic diagnostics (Meskin 2023). Using a USB Dino Lite Microscope to identify use-ware patterns can detect changes in the edge angle and identify damages or fractures without the use of chemicals or metallization, which until recently were predominately utilized in the "high powered approach" (Meskin 2023).

I recorded the form of the recorded ceramics as well as the diameter and form of any rim sherds located in the collection, in order to identify potential use of the site as a storage spot during hunting or trade expeditions. I cataloged and accessioned the botanical assemblage initially analyzed by Vorehy Jones, adding additional information gathered since the initial analysis in 1956 regarding native species in the Colorado River Watershed. While Wright recovered 375 fish specimens at Catclaw Cave, none have been re-located. A 1955 article by Robert Miller discusses the fish specimens in detail and identifies the fish species, albeit the common names have changed significantly since Miller's publication. I reviewed documentation of the fish specimens and incorporate attributes of the recently re-habilitated fish species of the Lower Colorado River in order to identify the typical size of each fish species. Lithic materials were re-analyzed using a USB Dino-Lite USB Microscope and compared to additional lithic materials recovered from archaeological sites in the Southwest, Great Basin, and California. Faunal remains, were reviewed for potential hunting use at the site. Finally, I interpreted Wright's findings specifically looking for indicated tasks within the diverse assemblage.

The ceramic and lithic assemblages were re-analyzed using non-destructive physical analytical techniques focused on the identification of style and construction methods of the artifacts. Ceramic temper and construction methods were recorded for sherds identified at the site, further confirming additional analysis. Ethnohistoric and past archaeological records were used to identify the potential use of artifacts recovered from Catclaw by examining the interpreted use of similar artifacts recovered from other archaeological sites or discussed in ethnographic overviews in the area. The recovered assemblage was compared to similar materials recovered during previous excavations at Willow Beach, Las Vegas Wash, Lost City, Cave Du Pont, and Snaketown archaeological sites, in order to shed light on trade connections between the Lower Colorado River Valley and other Southwestern communities.

To better understand which cultural groups used Catclaw Cave and the potential shifts over time, I re-analyzed figurines, incipient ware ceramics, coiled basketry, and sandals utilizing non-destructive physical analytical techniques. The non-destructive physical analytical techniques focused on identification of style and construction methods. A review of ethnohistoric and archaeological records was used to identify cultural affiliation and incorporate newer findings into the re-analysis of the Catclaw Cave assemblage.

Planning

Planning for this project was significantly challenged by the covid-19 pandemic which resulted in zoom meetings between involved parties and led to delays in obtaining permissions from federal agencies whose management of the collections is indirect. In 2022, the Catclaw Cave collection was split between various museums and repositories, inquiries regarding the collection were sent to the MNA, Michigan, Harvard University, the Amerind, the University of Arizona, the Reclamation, and the NPS LAKE. Roughly 60% of the collection was housed at the MNA, given the site is located in northwestern Arizona, the museum was identified as the best repository for the collection. The return of the botanical specimens from Michigan and the Amerind Institution (these particular specimens were formerly housed at Harvard University in Massachusetts) occurred in June of 2022, the botanical specimens were cataloged and accessioned at the NPS LAKE curation facility and reunited with the ceramic, lithic, and limited faunal assemblages at the MNA.

Federal Historic Preservation Law requires federal agencies to protect historic resources including archaeological sites, in the interest of the United States general public. In order to better protect Catclaw Cave and other sites located within the Lower Colorado River Valley, NPS LAKE and Reclamation assisted in the development of this project and all legal responsibilities were met specifically in regards ensuring opportunity for public comment.

Consultation Requirements

As Catclaw Cave is a federally managed site, consultation with Indigenous and descendant communities under the National Historic Preservation Act of 1966 54 United Sates Code (U.S.C.) 3061 (commonly referred to as Section 110) was undertaken. The NPS LAKE was responsible for undertaking consultation with Tribal Nations as outlined in Section 110 (see Table A1). Draft consultation letters were provided to NPS LAKE and Tribal Nations and I participated in the consultation process. The Quechan Tribe contacted the author regarding the project, a phone call was arranged and the project was added to the discussion list of the Cultural Committee. A letter of concurrence from the Quechan Tribe was received by NPS LAKE in April of 2023.

Additional Requirements

A majority of the Catclaw Cave collection recovered from the University of Michigan and the Amerind had not been cataloged or accessioned by NPS LAKE. In order to undertake the project, NPS LAKE needed to accession and catalog the collection first. Once the collection had been cataloged, accessioned, and reconciled (or loan agreements established between NPS LAKE and the curating institution), a research permit was submitted to NPS LAKE for review.

Chapter 4: Results

This chapter focuses on the results of the re-analysis of artifacts found within the MNA and NPS assemblages associated with the 1949 excavation of Catclaw Cave. This section discusses artifacts identified in 1954, 2011, and 2022 concerning the appropriate artifact type.

Ceramics

Excavations undertaken at Catclaw Cave in 1949 resulted in the recovery of 1,078 ceramic sherds representing at least eight different pottery ware types (see Table 2) (Wright 1954:56-57). Additional analysis completed by an unknown analyst between 1954 and 2011 is referred to in Gilreath's study (see Figure 18) (Gilreath et al. 2011: 55). During this project, I found 1,713 ceramic sherds within the Catclaw Cave assemblage housed at MNA; while, most of the assigned types within the MNA catalog were correct, incorrectly typed sherds or changes in terminology in the Lower Colorado River typology required modifications to the catalog (see Table 3).

Table 2: Pottery Identified by Wright (1954:56-57).

Artifact		Count
Pottery		*1078*
	Pyramid Gray	892
	Cerbat Brown	57
	Parker Buff	49
	Aquarius Black/Gray	29
	Boulder Gray	14
	Aquarius Brown	8
	North Creek Gray	6
	Sandy Brown	6
	Parker Stucco	6
	Deadmans Gray	4
	Deadmans Black/White	4
	Boulder Black/Gray	2
	Deadmand Black/Gray	1
	Undi. Black/Gray	1

Pottery Type	Date Range	Reference for Date Range	Weight (Grams)	Percentage
Brown Ware				
Paiute Brown Ware	AD 1300 to 1900	Lyneis 2004	717.7	10.1%
Gray Wares				
Moapa Gray Ware				
- Boulder Gray	AD 650 to 1250	McGuire et al. 2010:73	112.7	1.6%
Virgin Branch North Creek Gray				
- North Creek/Gray/Johnson Gray?	(?) AD 500-1200 (?)	Billat et al. 1992	69.0	1.0%
San Francisco Gray Ware				
- Deadman	Pre-AD 700 to 1140/1200	NAU Ceramic Manual 2001	83.7	1.2%
Patayan				
Lower Colorado Buff				
- Pyramid Gray	AD 1000 to post 1900	Schaefer and Daniels 2010:28	4,232.5	
- Parker Buff, Parker Stucco	AD 1000 to post 1900	Waters 1982:567; Schaefer and Daniels 2010:28	616.9	
Yavapai/Tizon Brownware				
- Cerbat Brown	AD 700 to 1890 (maybe tighten to AD 1100-1500)	NAU Ceramic Manual 2001	395.5	
- Aquarius Brown	AD 700 to 1890 (maybe tighten to AD 1100-1500)	NAU Ceramic Manual 2001	61.5	86.1%
- Sandy Brown	AD 700 to 1890 (maybe tighten to AD 1100-1500)	NAU Ceramic Manual 2001	385.4	
Prescott Grayware				
- Prescott B/G	At least AD 800 (maybe earlier) to 1400	NAU Ceramic Manual 2001	413.8	
Southern Desert Brown Ware				
- Tizon Brown Ware	AD 800 to 1900	Euler and Dobyns 1958 (in Sutton et al. 1987)	-	
Subtotal			7,088.7	100.0%
Extraneous				
Paiute/Pyramid Gray			1,622.6	
"?"			4,261.2	
Total			12,972.5	

Figure 18: Pottery identified in Gilreath (et al 2011:55).

Table 3: Pottery Identified During This Project.

Artifact		Count
Pottery		*1137*
	Pyramid Gray (Topoc Buff)	886
	Cerbat Brown	74
	Parker Buff	53
	Aquarius Black/Gray	29
	Boulder Gray	12
	Aquarius Brown	8
	North Creek Gray (Tusayan White Ware)	5
	Sandy Brown	4
	Parker Stucco	4
	Deadmans Gray	9
	Paiute	24
	Boulder Black/Gray	4
	Deadmans Black/Gray	1
	Prescott Black and Gray	24

Puebloan

In his thesis, Wright records sixteen sherds representing two types of Puebloan ceramic typology, Boulder Gray and Boulder Black and Gray (Wright 1954:56).

<u>Boulder Gray (Moapa)</u>

Within the Catclaw Cave assemblage, Wright identifies fourteen sherds of Boulder Gray ceramic ware (Wright 1954:57). Wright compares the Boulder Gray sherds to the number of Boulder Gray sherds recovered from Willow Beach by Schroeder and identifies these sherds as a significant hallmark of the Basketmaker III period or 600-900 A.D. (Wright 1954:57-58).

During re-analysis in 2011, an unknown analyst identified an unknown number of Boulder Gray ceramics within the Catclaw Cave assemblage at MNA (Gilreath et al. 2011:55). The report identifies that 1.6% of the collection is attributed to Boulder Gray but does not include any additional information (Gilreath et al. 2011:55).

Analysis associated with this project identified twelve Boulder Gray ceramic sherds. Archaeologists believe use of these sherds occurred predominately between 650 and 1250 A.D. (Gilreath et al. 2011; McGuire et al. 2010). The Boulder Gray ware recovered from Catclaw Cave contained olivine tempers and appeared grey with lines painted in black on the interior of the sherd. One rim sherd identified within this assemblage measured 12 centimeters and represented 10% of the jar size according to the rim diameter sheet utilized. I recorded this rim sherd shape as everted. Identified construction methods include using a coil and scrape method; signs of scraped coils were evident. Four sherds contained evidence of fire clouds, which suggests cooking activities at the site (see Figure 19).

<u>Boulder Black and Gray</u>

Wright identifies two sherds of Boulder Black and Gray ceramic wares (Wright 1954:57).

No Boulder Black and Gray ceramics were identified in the collection during additional analysis by Gilreath in 2011 (Gilreath et al. 2011:55).

During the analysis for this project, none of the ceramic sherds within the assemblage were determined to be part of the Boulder Black and Gray ware type.

Figure 19: Boulder Grayware ceramic sherds recovered from Catclaw Cave (Swett).

Lowland Patayan

Wright identifies nine hundred and forty-six ceramic sherds belonging to ceramic ware types within the Lowland Patayan tradition (Wright 1954:56-58).

<u>Pyramid Gray (Topoc Buff)</u>

Pyramid Gray sherds are the largest number of sherds recovered from the site; eight hundred and ninety-two sherds were recovered during the excavation (Wright 1954:56). Wright suggests this ware is a "locally developed type" and states that the sherds recovered from Catclaw Cave are "virtually identical in number a percentage with those recovered by Schroeder at Willow Beach" (Wright 1954:57-58). Within Wright's thesis, there is no additional information regarding Pyramid Gray sherds.

In her 2011 re-analysis of the Catclaw Cave collection, Gilreath states that 86.1% of the ceramic assemblage is Patayan in origin but does not specify the percentage of sherds identified as Pyramid Gray (Gilreath et al. 2011:55).

During this project, eight hundred and eight-six Topoc Buff sherds were identified and analyzed. While Wright identifies these sherds as Pyramid Gray following Schroeder's typology, recent research suggests Pyramid Gray ceramics are part of the Topoc Buff ware series (A. Wright 2021:6, Figure 2; McCormick 2010: Appendix C, Page 2; and Seymour and Rager 2005). Following additional research into Patayan ceramics, Topoc Buff began in 1000 A.D. until well after contact with Europeans after 1900 A.D. (Gilreath et al. 2012; Schafer and Daniels 2010; Seymour 1997; Waters 1982). I analyzed sherds using a USB Dino-Lite Microscope to identify temper construction. The

Topoc Buff sherds consist of a coarse, angular sand temper with crushed chunks of quartz rocks (see Figure 20). The Topoc Buff rim sherds appear to show signs of paddle and anvil construction, while the fragmented sherds appear to have been constructed utilizing the coil and scrape construction method. These share a light grey, apart from two with a red slip on the inner sherd, and others show signs of exposure to fire during cooking activities. At least one sherd had evidence of a mending hole. I identified nine rim sherds within the assemblage and recorded each rim sherd's size, shape, and percentage during this project (see Table 4).

Parker Buff

According to his thesis, Wright recovered forty-nine Parker Buff ceramic sherds, the third largest concentration within the Catclaw Cave assemblage (Wright 1954:56). While Wright does not discuss the Parker Buff ceramics in detail, he does state that the sherds recovered from Catclaw Cave are "virtually identical" to the sherds found at Willow Beach by Schroeder (Wright 1954:57-58).

Gilreath et al. (2011:55) identify Parker Buff ceramic ware within the assemblage. However, Gilreath does not determine specific counts for the number of recovered Parker Buff sherds combined with Parker Stucco ceramic sherds in the report (Gilreath et al. 2011).

During this project, fifty-three Parker Buff sherds recovered from Catclaw Cave were re-analyzed using a USB Dino-Lite Microscope. Parker Buffware ceramics recovered from Catclaw Cave consisted of subangular river rock temper, including quartz, mica, and feldspar pieces. I identified one rim sherd within the assemblage. The rim sherd measured two centimeters and comprised less than 5% of the vessel. No distinguishing rim sherd shape could be identified, given the small size of the sherd. Additional research into the ceramic typology of the Lower Colorado River suggests that the use of Parker Buff predominately occurred between 900 and 1150 A.D., though further research completed in 2010 indicates the use of Parker Buff between 1000 and 1900 A.D. (Seymour 1997; Waters 1958; McCormick 2010).

Parker Stucco

Wright identified five Parker Stucco sherds during his initial analysis of the Catclaw Cave collection (Wright 1954:57). Wright identifies the same low percentage of Parker Stucco sherds from Willow Beach (1954:57-58).

While the 2011 report by Gilreath et al. identifies Parker Stucco as a pottery type found within the assemblage recovered from Catclaw Cave, there are no counts for the number of ceramics found within the collection (Gilreath et al. 2011:55).

During this project, I located four Parker Stucco fragments, which suggest the cave was used around the time of contact with Europeans as stucco was predominately used as a means of décor following 1400 A.D. (A. Wright 2021). I did not identify any rim sherds, and the Parker Stucco fragments were too small to identify any specific temper characteristics (see Figure 21). The Parker Stucco ceramics recovered from Catclaw Cave were constructed using a paddle and anvil method and contain similar temper characteristics to Parker Buffware.

Figure 20: A Pyramid Gray sherd recovered from Catclaw Cave, this photograph of the temper was taken with the USB Dino-lite scope. Note the angular coarse temper with quartz rocks (Swett).

Table 4: Topoc Buff Rimsherds Recorded During This Project.

Catalog Number	Ceramic Type	Rimsherd Size	Rimsherd Shape	Vessel Percentage
LAKE 41041	Topoc Bff	20cm	Everted	10%
LAKE 41021	Topoc Buff	12cm	Everted	10%
LAKE 41021	Topoc Buff	3cm	n/a	<5%
LAKE 41021	Topoc Buff	2cm	n/a	<5%
LAKE 41024	Topoc Buff	3cm	n/a	<5%
LAKE 41024	Topoc Buff	13cm	Everted	>10%
LAKE 41024	Topoc Buff	5cm	Everted	7%
LAKE 41024	Topoc Buff	3cm	n/a	<5%
LAKE 41027	Topoc Buff	2cm	n/a	<5%
LAKE 41031	Topoc Buff	10cm	Everted	10%
LAKE 41031	Topoc Buff	13cm	Inverted	>10%
LAKE 41035	Topoc Buff	3cm	n/a	<5%
LAKE 41036	Topoc Buff	5cm	Inverted	6%

Figure 21: Parker Stucco sherds recovered from Catclaw Cave (Swett).

Upland Patayan

Upland Patayan ceramic ware sherds include the second largest number of recovered sherds from the site; Wright reports one hundred sherds within this typology series but he did not discuss these sherds in detail within his thesis (Wright 1954:56-58).

Cerbat

Wright identified fifty-seven Cerbat Brownware ceramic sherds during initial analysis (Wright 1954:56).

Gilreath's report identifies Cerbat Brownware ceramics within the collection but does not provide specific accounts (Gilreath et al. 2011:55).

During the re-analysis associated with this project, I identified seventy-four sherds of Cerbat Brownware. I analyzed temper using the USB Dino-Lite Microscope and recorded rim sherd size. None of the Cerbat Brownware ceramics contained decoration. These sherds have a medium-fine textured sub-angular temper, mostly comprised of quartz, feldspar, and sand particles (see Figure 22). The recovered sherds were a black or brown color. One of the rim sherds has a mending hole in the right corner, and an unknown orange and red organic matter covers the side (see Figure 23). Four rim sherds were identified in the assemblage (see Table 5). Cerbat Brownware ceramics have been used between 110 and -1500 A.D., though it seems members of the Patayan community utilized likely Cerbat Brown ceramics into the 1890s (Gilreath et al. 2012; NAU Ceramic Manual 2001).

Figure 22: *Cerbat Brownware rimsherd with mending hole. This photograph was taken using the USB Dino-Lite Microscope. Note the sub-angular coarse temper with quartz and sand particles (Swett).*

Figure 23: Cerbat Brownware rimsherd with mending hole (Swett).

Table 5:Cerbat Brownware Rimsherds Recorded During This Project.

Catalog Number	Ceramic Type	Rimsherd Size	Rimsherd Shape	Vessel Percentage
LAKE 41033	Cerbat Brownware	17cm	Everted	>10%
LAKE 41033	Cerbat Brownware	14cm	n/a	<5%
LAKE 41033	Cerbat Brownware	14cm	Everted	10%
LAKE 41028	Cerbet Brownware	13cm	n/a	<5%

<u>Aquarius Brown</u>

Within the Catclaw Cave assemblage, Wright identifies eight sherds of Aquarius ceramic ware (Wright 1954:57).

Gilreath's report identifies Aquarius Brownware ceramic sherds within the Catclaw Cave assemblage, but no counts are provided (Gilreath et al. 2011).

I identified eight Aquarius Brownware ceramic sherds. I recorded temper and construction using a Dino-Lite USB Microscope. I did not identify any rim sherds. The Aquarius Brown ceramics include coarse medium textured sub-angular tempers with quartz and feldspar intermixed with sandy river rocks. Aquarius Brown sherds recovered from Catclaw Cave were predominately dark brown, almost black, in color, with one light sherd identified in the collection. Archaeologists believe the Aquarius Brownware type was used contemporaneously with Cerbat Brownware ceramics, between 110 and 1500 A.D. (Gilreath et al. 2011; NAU Ceramic Manual 2001).

Sandy Brown

Wright identifies six sherds of Sandy Brown ceramic wares from Catclaw Cave (Wright 1954:57).

Gilreath's report identifies Sandy Brownware ceramics within the assemblage but does not identify any specific number of Sandy Brownware ceramics or rim sherds within the collection (Gilreath et al. 2011:55).

Analysis completed during this project utilized a USB Dino-Lite Microscope to identify temper and construction characteristics on four Sandy Brown sherds recovered from Catclaw Cave. The Sandy Brown sherds include a medium-fine textured sub-angular temper with quartz and sandy river rocks. The identified Sandy Brown sherds were a lighter brown or gray color. I did not identify any rim sherds. Construction of the Sandy Brown ceramic sherds recovered from Catclaw Cave focused on coiling and paddle-and-anvil techniques. Sand Brown ceramics were utilized or popularized simultaneously as the Cerbat Brownware and Aquarius Brownware ceramics between 1100-1500 A.D. (Gilreath et al. 2011; NAU Ceramic Manual 2001).

Prescott

Wright identifies twenty-nine sherds of Aquarius Black on Gray (Prescott) ceramic ware from Catclaw Cave (Wright 1954:57).

Additional analysis of the ceramic assemblage recovered from Catclaw Cave identified an unknown number of Prescott Black on Grey ceramic sherds but no additional information (Gilreath et al. 2011:55).

I identified twenty-four sherds of Prescott Black and Gray ceramics. Recent research suggests this ceramic construction was utilized in the region earlier than 800 A.D. until about 1400 A.D. (Gilreath et al. 2012; NAU Ceramic Manual 2001). I identified no rim sherds within the recovered Prescott Black and Grey assemblage. Construction methods associated with the Prescott Black and Gray ceramics include paddle-and-anvil and coiling and a moderate corse angular temper comprised of quartz and sand. Some decoration appears on one recovered sherd, and painted lines appear on the outside of the grey sherd (see Figure 24). Most of the recovered Prescott Grayware is light or dark gray, but some sherds are light brown, almost sandy. One sherd has a mending hole in the middle.

Figure 24: Prescott Black and Gray ceramic with decoration, recovered from Catclaw Cave (Swett).

North Creek (Tusayan White Ware)

Wright does not identify any North Creek/Johnson Gray ceramic sherds within the assemblage (Wright 1954:56-58).

In her 2011 report, Gilreath notes that an unknown number of ceramics have been analyzed and typed as North Creek/Johnson Gray ceramics (Gilreath et al. 2011).

During analysis for this project, five pieces of North Creek Gray/Johnson Gray (Tusayan Gray Ware- Virgin Series) ceramics were recovered. The term North Creek is no longer used, as additional research identified this ware-type as part of the Tusayan White Ware- Virgin Series ware (Lyneis and Hays-Gilpin 2008). I used a USB Dino-Lite Microscope to identify temper. These sherds consisted of a fine temper containing quartz sands, and the temper is a dark grey, almost black color. The outer sherd color is a blueish grey with signs of coil and scrape construction. I identified two rim sherds in the collection; one measured 3 centimeters and made up less than 5% of the specimen. I did not identify a rim sherd shape (see Figure 25). The second rim sherd measured 13 centimeters and comprised 10% of the vessel. I recorded the shape of the second rim sherd as everted. Tusayan Gray ware, Virgin Series, is used during Pueblo II times (900-1150 A.D.) (Lyneis 1992:33; and Wilkerson 2016:15).

Figure 25: Tusayan White Ware ceramics recovered from Catclaw Cave (Swett).

Cohonina

A small percentage of the assemblage is San Francisco Mountain Gray Ware (Wright 1954:56-57; and Gilreath et al. 2011:55). The Cohonina cultures south of the Grand Canyon, who constructed this ceramic ware, constructed ceramics between 700 and 1275 A.D. (American Southwest Virtual Museum 2015).

Deadman's Gray

Within the Catclaw Cave assemblage, Wright identifies four sherds of Deadman's Gray ceramic ware (Wright 1954:57).

The ceramic typology referenced in Gilreath et al. (2011:55) identifies the Deadman ware as a San Francisco Gray Ware subtype. Gilreath does not identify specific artifact counts but identifies 1.2% of the collection as Deadman's Gray ware (Gilreath et al. 2011:55).

During the analysis associated with this project, I identified nine pieces of Deadman's Gray pottery within the assemblage recovered from Catclaw Cave. Using a USB Dino-Lite Microscope, the Deadman's gray sherds include a coarse quartz sand temper construction. The recovered Deadman ceramic sherds vary from dark to light grey. I did not identify any rim sherds.

Deadman's Black and White (Deadman's Black-and-Gray)

Within the Catclaw Cave assemblage, Wright identifies four sherds of Deadman's Black and White ceramic ware (Wright 1954:57). Additionally, Wright identifies one sherd of Deadman's Black and Gray ceramic ware (Wright 1954:57).

Gilreath does not identify the Deadman's Black and White or the Deadman's Black-and-Gray ceramic sherds within the updated ceramic assemblage percentages and types (2011:55).

I identified four sherds of Deadman's Black and Gray ceramics within the Catclaw Cave assemblage. All four pieces contain painted designs using black paint (see Figure 26). One sherd has two triangle shapes, one painted black and the other outlined in black. The other three sherds contain small fragments of painted shapes, but the fragments are too small to identify a design motif. These sherds consist of a fine quartz sand temper. I did not identify any rim sherds. Recent research suggests the use of these ceramics between 900 and 1100 A.D. (Giomi et al. 2022:105).

Flagstaff Black-on-White

Wright does not identify any sherds of Flagstaff-Black-on-White within the Catclaw Cave assemblage (Wright 1954:56-57). During analysis in 2011, Gilreath does not include any information from the unknown ceramic analysts suggesting Flagstaff-Black-on-White sherds were identified within the assemblage either (Gilreath et al. 2011:55). In 2022, the MNA catalog included an unknown number of Flagstaff Black-on-White sherds intermixed with the Deadman's Gray and Deadman's Black and Gray ceramic sherds. Upon further analysis of this project, I determined no Flagstaff Black-on-White sherds were within the assemblage.

Figure 26: Deadman's Black-on-grey ceramic sherds recovered from Catclaw Cave (Swett).

Paiute

Wright does not identify any Paiute ceramic sherds within the assemblage (Wright 1954:56-58). Wright states that "no evidence of Paiute brown ware, the most recent pottery type recovered at Willow Beach" recovered from Catclaw Cave (Wright 1954:58).

During her 2011 re-analysis of the Catclaw Cave collection, Gilreath identifies a new ceramic typology for the collection (Gilreath et al. 2011:55). Gilreath attributes this typology to an unknown analyst and does not provide any additional information in the report (Gilreath et al. 2011:55). Gilreath identifies no exact counts of the recovered Paiute Brownware Ceramics. However, an unknown analyst attributes 10.1% of the assemblage to this pottery type (Gilreath et al. 2011:55).

I analyzed ceramic sherds for stylistic traits and construction methods. I identified temper using a USB-Dino-Lite Microscope. I found twenty-two sherds of Intermountain Brownware (formerly known as Paiute Brown Ware). Archaeologists believe the use of this ceramic occurred between 1300 and 1900 A.D. (Gilreath et al. 2011; Lyneis 2004). In 1990, Donald Tuohy argued for the non-ethnicity-specific classification of Brownware ceramics, and Paiute Brown Ware became part of the Intermountain Brownware classification (Betenson 2004). The recovered Intermountain Brownware sherds include coarse angular sand tempered with quartz rocks. I did not identify any rim sherds. No painted decoration can be observed on the outer or inner sherds, though one sherd exhibits "obliterated coils" (Betensen et al. 2012:67; Tuohy 1986). Sixteen sherds are dark brown, and six small sherds are light gray (see Figure 27). These ceramics were typically constructed using the paddle-and-anvil thinning method following coil construction and scraping (Baldwin 1950:27-28). Two sherds have mending holes, suggesting the ceramics were re-paired during use. The largest sherd appears to be the base of a jar or bowl. No residue analysis was completed during this project, but firing clouds and smoke discoloration consistent with cooking are present on three sherds. The small quantity of Intermountain Brownware suggests the use of the site by members of the Paiute for six hundred years.

Figure 27: Intermountain Brownware sherds, including the base of a jar (Swett).

Figurines

During the 1949 excavation, Wright recovered six unfired clay figurines. In his 1954 thesis, he discusses an additional figurine looted from the site in 1940, though no illustration of this figurine is included in his thesis report (see Table 6).

Gilreath et al. (2011) identified seven figurines during re-analysis of the Catclaw Cave collection (see Table 7).

In association with this project, I relocated seven figurines within the Catclaw Cave assemblage housed at MNA (Wright 1954:40; Wright et al. 2008:71; and Gilreath et al. 2011).

Table 6: Figurines Reported by Wright (1954:40).

Artifact		Count
Basketmaker Figurines		
	Hawk-Like	1
	Wedge-Like	2
	Female	1
Unknown Figurines		
	Fragments	>3

Table 7: Figurines Reported by Gilreath (et al 2011). These figurines were also identified during this project.

Artifact	Count
Avian Figurines	1
Female Figurines	2
Wedge Like Figurines	1
Unidentifiable Figurine Fragments	3

Avian Figurines

Wright specifies shares “much similarity” with the ceramic figurines recovered from the Prayer Rock site in Arizona (Morris 1951:36; Wright 1954:42; and Wright et al. 2008:75). Initial analysis completed by Wright identifies the difference in construction and decoration between the avian figurine and the wedge-like figurines recovered from Catclaw Cave (Wright 1954:40; and Wright et al. 2008:71). The hawk-like figurine is smoother and includes incised decorations and an ex for an eye (Wright 1954:40).

A second, complete, avian figurine is discussed by Wright in both his preliminary report (1949:5) and his thesis (1954:40 and 47) though the figurine was looted from the site in 1940 by prospectors (Wright 1949:5; 1954:47; and Wright et al. 2008:70). This complete figurine was found wrapped in the medicine bag along with the “Bighorn Sheep Ladle, several pieces of red paint rock, and rat teeth wrapped up in quartz crystal” (Wright 1954:47). This additional avian figure was complete and had a hawk-like appearance, according to the looters. The medicine bag and its contents, including the second bird-like figurine were never recovered (Wright 1954:47; Wright et al. 2008:71).

Gilreath et al. (2011:62) identifies the hawk-like figurine during her re-analysis of the collection. The differences in construction and decoration are also noted by Gilreath (et al. 2011:62) who identifies the figurine as “distinctive in form and style from the rest” of the assemblage (Gilreath et al. 2011:62). The second complete avian figurine was not recovered during the 2011 re-analysis of the Catclaw Cave collection.

I reviewed the hawk-like figurine, the smooth and intricate details of the figurine are unmatched from the assemblage recovered from Catclaw Cave, this suggests this particular figurine is not from the same period of use as the wedge-like figurines recovered at the site (see Figure 28). The use of bird like effigy's is unsurprising given the importance birds played in various cultures across the Americas (Scott 1960; Luer 1992; Horton 2018). I observed that the figurine is smaller than those recovered from classical Hohokam sites in central Arizona, and contains incised dots around the neck representing a necklace. The beak is also vastly different to the bird effigies recovered in the Simmons Collections at the Arizona State Museum, which closely resemble the avian figurines identified at the Point of Pines site in Arizona (Scott 1960). The second complete avian figurine was not found during this project.

Figure 28: Avian Figurine pictured above. Note the hawk like appearance of the face, one eye is scratched out on the left side while a slit for the other eye is located on the right. Wholes along the neck of the effigy suggest it may be a necklace or some kind of adornment (Swett).

Female Figurines

Of the six recovered figurines, Wright identifies one female figurine, noting a break in the figurine “just below the appliqued breasts” (Wright 1954:40). He notes that the female figurine is burned (Wright 1954:40).

Re-analysis in 2011 identified two female figurines within the Catclaw Cave assemblage housed at MNA (Gilreath et al. 2011:62). The first female figurine is the same figurine described by Wright (1954:40; and Gilreath et al. 2011:62). Previously determined to be a wedge-like figurine, Gilreath et al. determined that the figurine was in fact female (2011:62). Gilreath states that a “few [figurines] have small appliqued nubs of clay for breasts” and that the appliqued numbs have since “broken off” of the second female figurine identified in the collection (Gilreath et al. 2011:62).

During analysis associated with this collection, I identified two female figurines within the collection. Both artifacts are in good condition. One female figurine is burned (see Figure 29). Using a Dino-Lite USB Microscope, I analyzed the break in the torso of the burned female figurine. The temper is comprised of fine quartz sand (see Figure 30). The second female figurine does appear to be missing appliqued nubs. During review of this figurine in 2022, I identified two slits on either side of the front of the figurine, representing eyes. I also note that this particular figurine has five red stripes on the back, similar to the pattern and shape of figurines identified within the Lost City complex (see Figures 31 and 32) (Tuohy 2000:142). The red stripes are comprised of red ochre.

Figure 29: An upside-down female figurine recovered from Catclaw Cave in 1949. Wright initially records this as a bird like face figurine, but this is similar to other unfired figurines recovered from the Lost City complex in Overton (Swett).

Figure 30: The temper of the upside-down female figurine recovered from Catclaw Cave, taken with the Dino Lite USB Microscope (Swett).

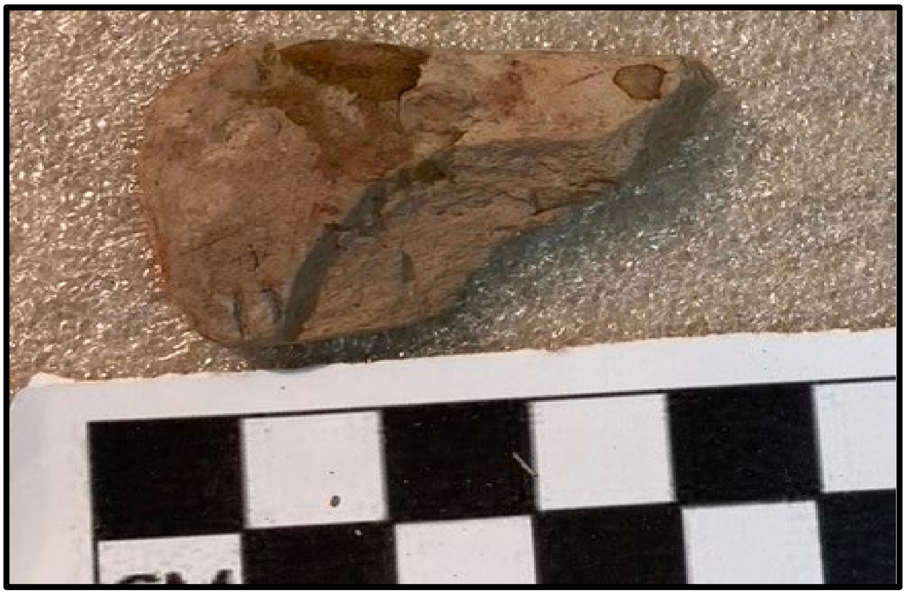

Figure 31: Painted female figurine (LAKE 40910) recovered from Catclaw Cave. This is the front of the figurine, note the slits represent eyes on each side of the left portion of the figurine, the pinched nose is no longer visible (Swett).

Figure 32: Painted female figurine recovered from Catclaw Cave. This is the back of the figurine, note the red painted stripes. This figurine is similar to styles recovered from House 47 and 112 at the Lost City and sites within the Great Basin (Swett).

Wedge-Like Figurines

Wright identifies two untempered clay figurines within the Catclaw Cave assemblage, stating, “their shape is that of an elongated wedge with the head at the widest end. The eyes are represented by two parallel incisions on either edge close to the top of the head, and are separated by an applique of pinched clay for the nose” (1954:40). Wright records both figurines with pinched clay for nose (1954:40-41). In his thesis, Wright reports a “spatulate-like figurine” with a nose and two red zig zags on the back of the figurine (Wright 1954:40-41).

In 2011, Gilreath identifies one wedge-like figurine within the Catclaw Cave assemblage, noting red paint on the figurine (Gilreath et al. 2011:62). Gilreath does not identify the “spatulate-like figurine” described by Wright (Gilreath et al. 2011:62).

During analysis associated with this project, I identified one wedge-like figurine. This figurine was previously identified as a spatulate figurine by Wright (1954:40-42). During review of this figurine, I note the similarities in construction between the spatulate figurine and the wedge-like figurines recovered from the site, specifically the two female figurines. Based off my analysis, this figurine is a wedge-like figurine not a spatulate-like figurine. The figurine no longer has a pinched clay nose, though a hole is evident in the center of the figurine where it most likely sat attached (see Figure 33). One zig zag painted with red ochre is visible on the front of the figurine, there is a faint red ochre line parallel to the zig zag line, but it is very faint.

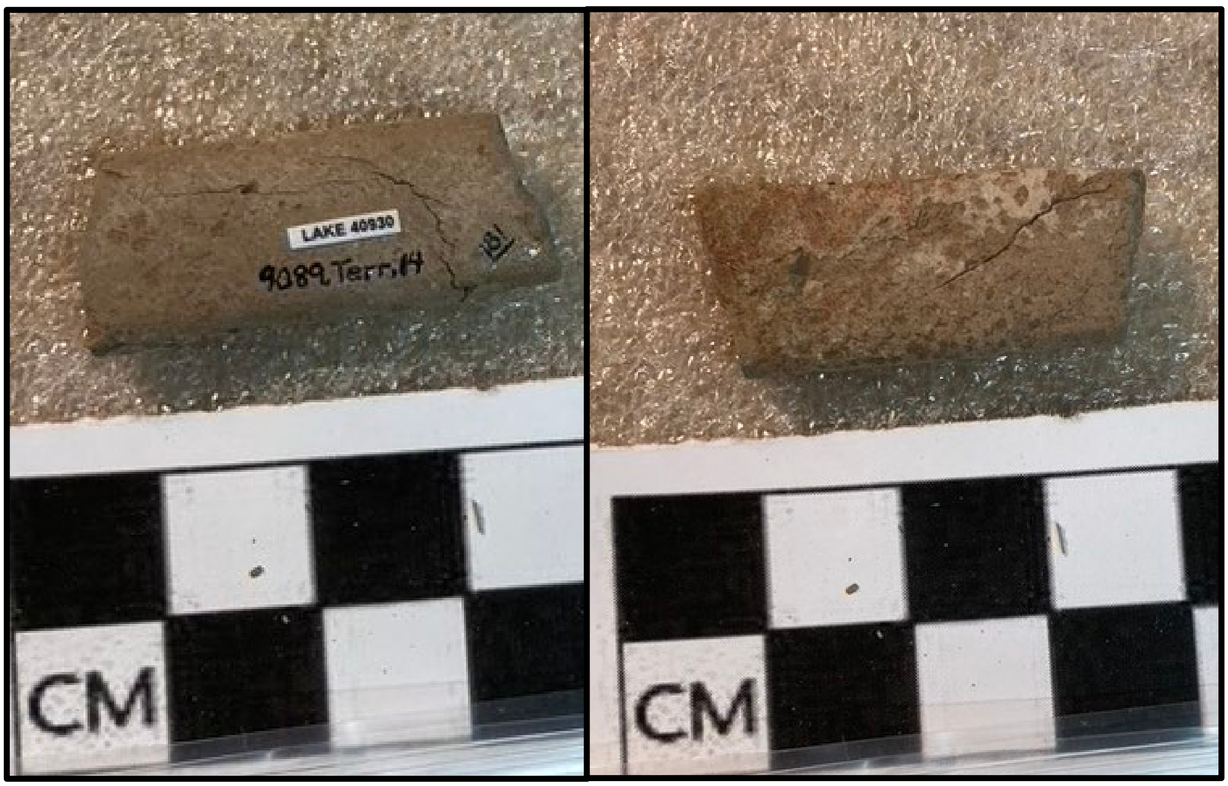

Figure 33: The left side depicts the back of the figurine and the right depicts the front. Note the red ochre line on the front figurine and the missing nose (Swett).

Unidentifiable Figurine Fragments

Additionally, Wright describes a pipe fragment and several unfired figurine fragments (Wright 1949:43-46; Wright et al. 2008:72-74). Wright also records a hollowed-out figurine which was burned by “accident” (Wright 1954:40; Wright et al. 2008:70).

In 2011, Gilreath identified the fragment as an effigy with punctured holes (Gilreath et al. 2011: Appendix E. Page 1). The report does not identify any additional information regarding the unidentifiable figurine fragments, pipe fragment, or hollowed-out figurine except to state that these items were observed (Gilreath et al. 2011:55-62).

Upon reviewing the “effigy” (Gilreath et al. 2011:62) figurine, I observed that the plain unfired ceramic fragments contain four incomplete or shallow holes on the back of the fragment and one complete or deep hole on the front of the figurine. This complete hole was a mending hole probably used to keep the figurine together after it broke. There is no decoration on this figurine, but the shape does not suggest it was part of an unfired ceramic pipe. The shape of the figurine is similar to the wedge-like figurines recovered from Catclaw Cave. Further review of the hollowed-out figurine identified red ochre paint on the end of the broken fragment; this was never mentioned in Wright’s findings (1954). Based on further review of this figurine, I suggest it was part of an effigy: the hollowed-out nature of the figurine and the red ochre located at the end further suggest it may have been a limb (see Figure 34). I did not identify any additional ceramic figurine fragments within the collection housed at MNA.

Figure 34: The image to the left is the back of the figurines and has no red ochre paint, while the image on the left represents the front of the figurine and has a small mark of red paint (Swett).

Miscellaneous Clay Items

Unfired Miniature Pottery (Pseudo Pottery)

Wright identifies twenty-four pieces of unfired miniature pottery from Catclaw Cave, including vessels that were clearly constructed with the coil technique (Wright 1954:43). He notes that, “the paste in some instances contains fragments of shredded bark which may represent accidental inclusions rather than a definite attempt to temper the clay (Wright 1954:43). Additional diagnostics recorded by Wright include, “…definite finger impressions, or finger smears where smoothing was attempted” (Wright 1954:43). Some of the recorded vessels were “… dried until plasticity was almost lost before the clay was worked into vessel form, resulting in heavy cracking o the vessel wall and poor cohesion between the coils” (Wright 1954:43). He notes that a “few of the specimens show partially obliterated coils on the exterior surface and unobliterated coils on the interior (Wright 1954:43). A river sand coating is recorded on several of the vessels, which Wright believes suggests the vessels were “placed in the sand to dry” (Wright 1954:43).

Additional physical characteristics recorded by Wright include notes on the rims of the recovered vessels; “rims pinched are upwards resulting in an irregular, rather wavy edge” (Wright 1954:53). Two forms of decoration are noted along these vessels, incising and painting (Wright 1954:43). Wright identifies incising on bowl interiors and jar exteriors which utilize unidentified geometric patterns (Wright 1954:44). He states that, “painting appears as an over-all wash on both interiors and exteriors, as broad stripes of geometric designs" (Wright 1954:44). These decorative elements are only found on the exterior of the item; the paint used is comprised of an orange-red ochre and a black manganese oxide (Wright 1954:44). None of the vessel forms could be recorded, as the vessel sizes were too small; though Wright does record the diameters of the neck fragments, which range from "11.2 cms. to 3.6cms." and "wall thickness ranges from .8cm to .3cm" (Wright 1954:44).

One straight sided neck fragment is described in additional detail, the fragment includes "two rows of perforations beginning 2.0cms below the rim" (Wright 1954:44). Three holes are recorded in one row; while, two additional holes are recorded 1cm apart (Wright 1954:44). According to Wright, "these holes are .4cm in diameter and may have been made by pushing a small reed or twig through the wall while it was still plastic" (Wright 1954:44). Additionally, Wright identifies two fragments which may have been vessel handles (Wright 1954:44). One fragment is a "single coil broken at both ends and may be either a broken coil, or, more likely because of the sharpness of curvature, the handle of a miniature vessel" (Wright 1954:44). A second specimen is identified as a jar neck and includes "two adjoining edges that have been smoothed" (Wright 1954:45). Decorative elements associated with this specimen include incising and painting, all of which is only visible on the exterior of the sherd, and consists of an unidentified geometric form "parallel to two of the round edges" (Wright 1954:45). Incisions on this specimen have been painted black and a boarder has been outlined with red paint (Wright 1954:45).

Additionally, Wright records two small pieces of “funnel-shaped clay” which he believes “may represent part of a pipe bowl, although there is no evidence of firing or use” (Wright 1954:45). This specimen is reported as only 1.8 centimeters in length, with the largest diameter measuring only 2.0 centimeters (Wright 1954:46). Unfired clay disc fragments were identified and repaired, Wright records that “the disc is an elongated oval with a shar taper in cross section” (Wright 1954:46). One recorded specimen is reported as a “miniature pot lid” and is reported as a “flat lower surface and a slightly convex upper surface with a small central projection which may represent a handle (Wright 1954:46).

During analysis in 2011, Gilreath identifies twenty-four miniature pottery fragments including the “straight-sided neck fragments” initially recorded by Wright (Gilreath et al 2011:55). Gilreath also identifies “two provisional vessel handles, two pieces of a pipe bowl, a disc, and a miniature pot lid” within the collection (Gilreath et al 2011:55). No additional information is provided, though all of the artifacts are outlined in the updated catalog created by Gilreath et al (2011: Appendix E).

Analysis associated with this project identified seventeen unfired miniature pottery fragments (pseudo pottery) within the Catclaw Cave collection at MNA. One recovered fragment had rounded edges and contained black painted lines with red painted zig zag lines on the left half of the figurine (see Figure 35). One pipe fragment was identified within the collection, this item contained no decoration, but was smoothed. One disk fragment was identified, the disk is a different color clay than the other pseudo pottery pieces suggesting was made with a different clay. The disk is gray with a smear of black residue on the left side of the disk, it has been polished. An oval fragment is also identified within the collection, this piece is painted with red ochre on one side. One handle fragment was identified, though no decorative elements were noted. Additionally, one coil fragment attached to a clay slab was identified within the collection. One fragment was flat and included incising decorations on half of the fragment creating a v-shaped line. Five plain flat fragments were identified, no holes or decorative elements were noted. Four fragments included smearing of red ochre paint but did not include any additional decorative elements.

Figure 35: Decorated pseudo pottery fragment recovered from Catclaw Cave (Swett).

Tabular Clay Items

Wright identifies two “thin slabs of clay” which are recorded as rectangular in shape, “with one convex surface and one concave surface” (Wright 1954:46). One of the fragments includes three holes which Wright records “showed the impression of a reed thrust through the slab and withdrawn while the clay was still damp” (Wright 1954:46).The second fragment does not contain any holes and nor decorative elements are recorded for either specimen (Wright 1954:46).

Gilreath identifies two tabular clay items within her report following additional review of the Catclaw Cave assemblage housed at MNA (Gilreath et al 2011:55). These items are included in the updated catalog, but there is no in-depth discussion regarding these items in the report (Gilreath et al 2011:55).

The two tabular clay items were found at MNA in association with the analysis completed for this project. These items were in good condition but did not include any recognizable design features. One tabular item is flat and shows evidence of coiling construction. The second tabular item is smoothed and rounded into a conical shape.

Miscellaneous Clay Items

Additional fragments labeled as “by-products” were identified at the site and included “coil ends, lumps of squeezed clay, and raw clay on grass pads” (Wright 1954:46-47). Some of the recorded clay lumps “showed evidence of having been smeared with red ochre in haphazard splotches as though the smearing were accidental rather than purposeful” (Wright 1954:47). Wright notes that fifteen fragments recovered from the site were “tabular with some of the pieces showing carefully rounded edges” (1954:47).

In her 2011 re-analysis, Gilreath identifies an unknown number of miscellaneous clay items and “by-products” housed within the collection at MNA (Gilreath et al 2011:55). These items are reflected in the updated catalog, but are not discussed in detail in the report (Gilreath et al 2011:55).

During the analysis completed for this project, fifteen miscellaneous clay items were identified within the collection housed at MNA. Two of the fragments had been repaired during curation activities between 1954 and 2022. Within the assemblage, two showed evidence of coil construction. Four of the fragments were pinched up on one side with rounded edges. Only one fragment contained traces of red pigment. Another fragment is a rounded and smoothed conical shape. Five additional fragments are small in nature and do not contain any diagnostic information or decoration.

Lithics Chipped Stone Tools

The lithic materials recovered from Catclaw Cave were housed with the ceramic assemblage at the MNA in Flagstaff. During his initial analysis, Wright states that the “lithic assemblage that normally exists in the open sites along the Colorado River and as reported by Schroeder from Willow Beach was very inadequately represented in Catclaw Cave” (Wright 1954:23). While Wright discusses spokeshaves, choppers, pulping planes, knives, drills, scrapers, projectile points, and “miscellaneous stone”, he did not identify the exact number of each lithic specimen recovered from the 1949 excavations (see Table 8) (Wright 1954; Wright et al 2008: 59-63).

Gilreath et al. (2011) re-identified and re-typed the lithic assemblage, compiling this new information into the 2011 catalog for MNA (Appendix E). The artifacts examined by Gilreath include exact counts of the lithic materials including complete projectile points which had not been included in Wright's initial thesis (see Table 9) (Gilreath et al 2011:54).

The 2022 catalog compiled by MNA included knives, scrapers, spokeshaves, choppers, pulping planes, drills, projectile points, and miscellaneous stone. The 2022 MNA catalog did not utilize the 2011 catalog compiled by Gilreath (Gilreath et al 2011). This project attempted to reconcile as many artifacts as possible utilizing the vague descriptions included in Wright et al 2008, the MNA/NPA Catalog, and the inventory provided in Gilreath et al 2011. Re-analysis conducted as a result of this project resulted in the confirmation of seven knifes, seven unidentifiable biface tools, two scrapers, five flakes, two drills, and one piece of unidentified debitage (see Table 10). I re-typed lithic tools and analyzed knives, drills, scrapers, and projectile points, sing a USB Dino Lite Microscope to identify potential use-ware patterns and diagnostic variations that can occur during use.

Table 8:Chipped Stone Artifacts Reported by Wright (1954:59-63).

Artifact		Count
Chipped stone		
	Scrapers	>_3
	Projectile Points	>4
	Knives	>2
	Drills	2
	Spokeshaves	>1

Table 9: Chipped Stone Artifacts Reported by Gilreath (et al 2011:54).

Artifact		Count
Chipped stone		
	Scrapers	0
	Projectile Points	9
	Knives	0
	Drills	2
	Spokeshaves	0
	Flakes	7
	Bifaces	24
	Debitage	6

Table 10: Chipped Stone Artifacts Recorded During this Project.

Artifact		Count
Chipped stone		
	Scrapers	6
	Projectile Points	9
	Knives	8
	Drills	2
	Spokeshaves	>1

<u>Scrapers</u>

Wright reported at least three scrapers; one single-edged side scraper is reported, one double-edged side scraper, and one keeled scraper (Wright 1954:23-25). The single-edged side scraper is reported by Wright as a "roughly triangular shaped thin flake" composed of either chalcedony, jasper or agate (1954:23). Wright records the artifact's size and states that this scraper compares with the scrapers recovered from Willow Beach in 1950 (Wright 1954:23; Schroeder 1961:31-32; and Wright et al 2008:59 and 64). The double-edged side scraper described by Wright encompasses "thin irregular flakes of jasper, quartzite, or chert with chipping on two or more edges" (1954:23). Wright notes that the double-edged side scrapers recovered from Catclaw Cave have two sub categories, one where the edges are chipped in the same direction and the other where chipping occurs on two alternative edges (1954:25). Additionally, Wright notes that double-edged scrapers with alternative chipped edges are reported by Schroeder at Willow Beach (Wright 1954:25; Schroeder 1961:31-32; and Wright et al 2008:59 and 64). A third scraper type is reported by Wright, the keeled scraper, which reportedly consist of chalcedony cores with a single edge worked and a rough central hump (Wright 1954:25).

During re-analysis in 2011, Gilreath identified seven flake tools, though none are specifically characterized as a scraper (Gilreath et al 2011: Appendix E). Gilreath did note that two flake simple tools are keeled (Gilreath et al 2011: Appendix E).

Eight artifacts had been identified between 1954 and 2011 as scrapers by an unknown analyst. During the re-analysis completed for this project, I found six scrapers within the Catclaw Cave collection housed at MNA. Two of the artifacts identified by MNA as scrapers were actually a biface and debitage. The scrapers were examined using a USB Dino Lite microscope for possible fractures and other indicators of use-wear. Apart from the chipped edges noted by Wright (1954:23-25) the USB Dino Lite Microscope did not identify any additional use-wear indicators including any possible fractures along the center of the scraper nor any additional broken chips on the edges. No botanical matter was observed on the scrapers during this analysis.

Projectile Points

According to Wright's initial 1954 thesis, at least four projectile points are identified with an unknown number of point fragments (1954:25-26). Wright notes that stemmed flake points, "thin triangular flakes of jasper and opalite basally notched with stems and tangs of equal lengths" were recovered from the site during the 1949 excavation (1954:25). He also discusses a singular stemmed point recovered from the site, which consists of a "small broad-stemmed side notched chert point with a section of the stem missing and the tip showing blunting and a lenticular cross section" (Wright 1954:25). The third type of projectile point recovered from the site is a broad triangular point which Wright records as an "unstemmed quartzite point with the shape of an equilateral triangle" (Wright 1954:26). Finally, Wright identifies constricted triangular points from Catclaw Cave which consist of 'unstemmed quartzite points with flared bases and constricted sides with flat bases and include some instances of serrations near the base" (Wright 1954:26). Besides the singular stemmed point, Wright did not include an exact count of the recovered projectile points in his 1948 preliminary report, 1954 thesis, or the 2008 publication (Wright 1948; Wright 1954:25-26; and Wright et al 2008:59-61).

During re-analysis in 2011, Gilreath identified nine projectile points within the MNA collection (Gilreath et al 2011: 54 and Appendix E). Gilreath reports one Gypsum Contracting point, four Rose Spring variants, two large triangular forms that "are reasonably considered" Saratoga Springs, and one Cottonwood Triangular point (See Figure 36) (Gilreath et al 2011:54). One projectile point was not typed by Gilreath: a triangular point later identified in the Catclaw Cave Catalog in Appendix E as a Gunther point (see Figure 37) (Gilreath et al 2011: Appendix E). One artifact was originally cataloged as a drill, but Gilreath (et al 2011:54) suggested it may be an elongated triangle projectile point. There is no determination as to whether the artifact was a drill or projectile point and both are listed in the catalog (Gilreath et al 2011: Appendix E).

While Gilreath compiled a significant amount of information regarding the nine projectile points recovered from the site, the 2011 report did not identify two of the four Rose Spring points recorded. In 2022, the MNA catalog identified only six projectile points listed in the collection. During re-analysis associated with this project, I identified nine projectile points within the Catclaw Cave collection at MNA (see Table 11).

Additional analysis of the projectile points, completed for this project further identified two triangular projectile points as part of the Rosegate series, the missing two from Gilreath's report. Two triangular projectile points are Rosegate series projectile points, though it seems one was omitted from the assemblage count in 2011. Upon re-analysis, I identified the drill as an elongated triangle projectile point, the artifact is different from other drills within the assemblage and better reflects the elongated triangle projectile point first proposed by Gilreath (Gilreath et al 2011:54).

I also identified the two triangular projectile points typed as possible Saratoga Spring projectile points by Gilreath in 2011 (see Figure 38) (et al 2011:54). Upon reviewing the collection and subsequent archaeological research at the Saratoga Spring site completed by William Wallace, these triangular projectile points are Rosegate series projectile points, representative of the Saratoga Springs "cultural stage" (Wallace 1977:255).

Figure 36: LAKE 40873, a Gypsum projectile point recovered from Catclaw Cave (Swett).

Figure 37: LAKE 40954, a Gunther agate projectile point recovered from Catclaw Cave (Swett).

Table 11: Projectile Points Reported by Gilreath (et al 2011:54) and Identified During this Project.

MNA Catalog Number	Field Number	Field Catalog Number	MNA Type	Description
LAKE 40953	TTR1.2	NA9089.TTR1.2	Projectile Point	Projectile Point (Cottonwood)
LAKE 40954	TTR1.3	NA9089.TTR1.3	Projectile Point	Projectile Point (Gunther)
LAKE 40921	TERR.5	NA9089.TERR.5	Drill	Projectile Poit/Drill (Enlongated Triangle)
LAKE 40922	TERR.6	NA9089.TERR.6	Projectile Point	Projectile Point (Triangular-Rosegate)
LAKE 40865	TALUS.2	NA9089.TALUS.2	Projectile Point	Projectile Point (Triangular)
LAKE 40873	TALUS.10	NA9089.TALUS.10	Knife	Projectile Point (Gypsum Contracting Stem)
LAKE 40867	TALUS.4	NA9089.TALUS.4	Projectile Point	Projectile Point (Triangular)
LAKE 40868	TALUS.5	NA9089.TALUS.5	Projectile Point	Projectile Point (Rose Spring)
LAKE 40998	103	NEW L. TA W	Projectile Point	Projectile Point (Rose Spring)

Figure 38: A Rosegate projectile point, recovered from Catclaw Cave (Swett).

When I utilized a USB Dino-Lite Microscope, I found one of the nine projectile points contained recognizable use-ware pattern seriations on the base of the quartzite Rosegate Projectile Point first identified by Wright (1954:26). None of the other projectile points showed signs of fractures or breakage resulting from definitive use.

The number of Rosegate series projectile points further suggest that use of Catclaw Cave occurred during various periods of cultural influence, though the ceramic assemblage and radiocarbon dates obtained in 2011 and 2023 suggest use of the cave occurred predominately during the Patayan period. This confirms Wright's initial observation regarding the limited lithic materials recovered from the site. The lack of lithic materials further suggests that lithic processing was not the predominate activity at the site, rather the possibility of additional lithic processing sites within the vicinity seems highly likely.

Knives

As with most of the recovered assemblage, Wright did not identify specific counts of the knives he found during the Catclaw Cave excavations in 1949, but he did identify three types of knives represented in the collection (Wright 1954:26-27). An unknown number of triangular knives were recorded by Wright, including "relatively large blades of chalcedony, jasper, or chert and include a slightly convex base" (Wright 1954:26-27). Based on Wright's thesis, at least three complete triangular knives were recovered as "one specimen possessed a round protuberance in the center of the base" which Wright identifies as an "accident of chipping or a rudimentary stem" as well as an unknown "quantity of broken bases" (Wright 1954:26-27). Wright notes that these knives are “identical” to the knives recovered from Willow Beach in the pre-ceramic context excavated by Schroder (Wright 1954:27; Schroeder 1961:30-31); and Wright et al 2008:60).

The second knife type identified by Wright at the site is a flake knife which encompasses “irregularly shaped flakes of jasper, chert, or quartzite”(Wright 2008:60) He, identifies these flakes as “… secondarily chipped along a single edge on both faces to produce a knife-like edge. The remainder of the flake is unshaped” (Wright 1954:27). A third knife type is discussed at length in Wright’s 1954 thesis, an oval knife, “represented by a single specimen composed of chalcedony with a slight retouching of the edge. The central section was fairly thick” (Wright 1954:27). Wright did not note any similarities between the flake knife and other assemblages, but he did note the similarities between the oval knives recovered from Catclaw Cave and the oval knives recorded by Rogers in the Playa Industry (Wright et al 2008:64).

In 2011, Gilreath re-examined the lithic assemblage, identifying six biface artifacts and zero knives specifically within the collection (Gilreath et al 2011: Appendix E). One artifact recorded as a knife by MNA in 2022 was reported by Gilreath as a Gypsum-Contracting Stem projectile point in 2011 (Gilreath et al 2011: 54 and Appendix E).

Re-analysis completed for this project in 2022 identified eight knives. During my analysis for this project, I confirmed three of the eight knives consisted of rectangular base fragments while one complete knife and a fragment were triangular in shape coinciding with the information presented in the MNA catalog. A second complete knife was originally cataloged by MNA as a tear shaped knife, but re-analysis during this project identified this artifact as another triangular shaped knife. Two knives were identified during the re-analysis that match Wright's description of the oval knife (Wright 1954:27). Both knives are rounded and are chipped on both edges. I evaluated the eight knife during this project. I agree with Gilreath's analysis and echo the determination that the artifact is in fact a Gypsum-Contracting Stem projectile point (Gilreath et al 2011:54).

USB-Dino Lite microscope images of the knives were taken, but no use-wear indicators were identified during the analysis. No organic matters were identified by the USB-Dino Lite Microscope on any of the knife artifacts.

Drills

Wright did not identify the number of drills recovered during the 1949 excavation, though his thesis suggests there were at least two recovered (Wright 1954:27-28). Within his 1954 thesis, Wright states "the drills were formed of long thick triangular flakes of quartzite with the bases unworked. In cross sections these drills are roughly lenticular. One specimen exhibited a circular cross section and was much more finely chipped than the others" (Wright 1954:27-28). No additional information was provided regarding the drills in the 1954 thesis or the 2008 publication.

Gilreath's re-analysis in 2011 identified only two drills within the Catclaw Cave assemblage housed at MNA (Gilreath et al 2011: Appendix E). One of the drills identified by Gilreath is identified as a flake with a diamond cross-section and he suggests it was a re-worked biface margin (Gilreath et al 2011: Appendix E, Page 1).

One projectile point was also listed as a potential drill within the 2011 catalog compiled by Gilreath (2011: Appendix E, Page 2). No additional information is included in the report.

During re-analysis associated with this project, two drills were identified within the lithic assemblage housed at MNA. One drill was determined to have a diamond cross section by Gilreath in 2011, during analysis associated with this project, this was confirmed (Gilreath et al 2011: Appendix E). A second drill was also identified during my analysis, I determined this drill also consist of a diamond cross section which was not reported in earlier analysis (see Figure 39). A USB-Dino Lite Microscope was used to identify possible use-wear patterns, though none were identified on the recorded drills.

Figure 39: One of the two drills recovered from the site, this drill is comprised of a diamond cross section styled drill (Swett).

Spokeshaves

Following his 1949 excavation, Wright identified “irregular flakes of felsite or chert with one or more notches averaging 0.8-cm in diameter with a chipped edge” (Wright 1954:28). This artifact type was recorded as a spokeshaves by Wright (1954:28). No additional information was provided.

Gilreath did not identify any spokeshaves within the Catclaw Cave collection housed at MNA though seven flake simple tools were noted (Gilreath et al 2011: Appendix E).

I did not identify any spokeshaves within the collection, though twenty-six undeterminable flakes were recorded. None of the identified flakes match the description listed in Wright’s thesis (1954:28).

Unidentifiable Bifaces

There is no mention of any bifaces in Wright’s initial discussion (1954:30) of the artifacts recovered from Catclaw Cave. While there are no actual counts identified in Wright’s thesis (1954) or the 2008 publication (Wright et al 2008), there is no general discussion of possible bifaces though Wright did discuss knife artifacts and scrapers generally in his thesis (1954:27).

Gilreath identified twenty-four biface artifacts within the lithic assemblage recovered from Catclaw Cave (Gilreath et al 2011: Appendix E). All of the bifaces identified by Gilreath were previously recorded as either knives, scrapers, or miscellaneous stones (Gilreath et al 2011: Appendix E). No additional information was provided in the 2011 report (Gilreath et al 2011).

During re-analysis associated with this project, sixteen bifaces were identified within the Catclaw Cave assemblage housed at MNA. The bifaces analyzed during this project were predominately large flakes that were initially recorded by MNA as scrapers. Given the shape and size of each biface identified in the collection, it is unlikely these were scraper fragments as a majority of the scrapers recovered from Catclaw Cave were unifacial (Wright et al 2008:59). Since the Bifaces are fragmented the specific tool used to create them could not be identified.

Unidentifiable Flakes

Wright did not identify any flakes within his thesis (1954:30) and did not record any flake artifacts recovered from Catclaw Cave.

Gilreath identified seven flake tool simple artifacts within the Catclaw Cave assemblage, but did not discuss the artifacts in detail (Gilreath et al 2011: Appendix E). A few the flake tool simple artifacts were initially recorded in the MNA catalog as scrapers, though Gilreath did not identify whether or not the flake tool simple artifacts were scrapers or flakes (Gilreath et al 2011: Appendix E).

I identified thirty-six flakes within the Catclaw Cave assemblage housed at MNA. A majority of the flakes were identified as miscellaneous stone by MNA, but these artifacts are flaked lithic fragments. I analyzed the flake artifacts, but the size of the fragments did not allude to the lithic tool type associated with a majority of the flakes.

There appeared to be three scraper fragments and two projectile point fragments mixed in the miscellaneous stone bag, but none of the other flakes were identifiable.

Unidentifiable Debitage

Wright did not identify any pieces of debitage within Catclaw Cave assemblage (1954:23-32). These artifacts were typed as miscellaneous by MNA.

Gilreath et al. (2011) identified six pieces of debitage within the Catclaw Cave assemblage, but did not discuss the artifacts in detail. No debitage artifacts are cataloged in the MNA inventory, though at least one piece of debitage identified by Gilreath is listed in the MNA inventory as a scraper (Gilreath et al 2011: Appendix E).

I identified the six pieces of debitage previously recorded by Gilreath in 2011 (et al 2011: Appendix E) and an additional three pieces of debitage within the Catclaw Cave assemblage housed at MNA. I analyzed the debitage artifacts, three of the debitage artifacts are larger pieces of debitage. I have determined the three larger pieces of debitage to be cores, which would have been used during tool manufacturing and produced flakes that were refined into various tools such as knives, projectile points, and scrapers. There are a number of additional debitage pieces mixed in the miscellaneous stone bag, but six pieces of debitage were unidentifiable in regards to whether they were cores or just large pieces of flake material.

Cobble Tools

Cobble tools are incorporated into Wright's discussion of the lithic assemblage recovered from Catclaw Cave during the 1949 excavations (see Table 12) (Wright 1954:23-32). The cobble tools were re-analyzed by Gilreath in 2011 (see Table 13) (et al 2011: Appendix E), but were not cataloged separately. In 2022, the MNA catalog included no cobble tools, simply listing all large stone tools as "miscellaneous stone" (MNA 2022). I identified seventy-five cobble tools within the collection (see Table 14).

Table 12: Cobble Tools Recorded by Wright (1954:23-32).

Artifact		Count
Cobble Tools		
	Chopper	>2
	Pulping plane	1
	Hammerstones	>1
	Possible polishing stones	3
	Pigment grinding cobbles	2

Table 13: Cobble Tools Recorded by Gilreath (et al 2011:Appendix E).

Artifact		Count
Cobble Tools		
	Chopper	0
	Pulping plane	0
	Hammerstones	<24
	Possible polishing stones	<1
	Pigment grinding cobbles	<1

Table 14: Cobble Tools Recorded During this Project.

Artifact		Count
Cobble Tools		75
	Chopper	5
	Pulping plane	2
	Hammerstones	9
	Possible polishing stones	3
	Pigment grinding cobbles	2
	Polishing Stone	1
	Bifaces	16
	Flakes	36
	Debitage	6
	Misc. Stone	0

Choppers

Wright identified choppers within the lithic assemblage recovered from Catclaw Cave, stating, “the few choppers found in Catclaw Cave were without exception unifacial similar to one illustrated by Rogers (1939)” (Wright 1954:28; Rogers 1939: Plate 4e; and Wright et al 2008:62). According to Wright the choppers were “made from large oval cobbles, generally of quartzite, from which three or more large flakes were removed” (Wright 1954:28). Initially Wright compares the choppers recovered from Catclaw Cave to the chopper’s identified by Rogers in Black Canyon, but he states that “the result [of the Catclaw Cave choppers] was not Rogers’ pointed chopper… but a tool with a smooth handhold and a short slightly convex cutting edge” (Wright 1954:28). Wright also identifies similarities between the chopper artifacts from Catclaw Cave and those recovered from Willow Beach and the Mohave area (Wright 1954:31-32; Rogers 1939: Plate 11a and b; Schroeder 1961:27, 30; and Wright et al 2008:64).

No choppers are identified in the re-analysis completed by Gilreath in 2011 though she notes analyzing six bags of cobble stones including hammerstones and grinders (Gilreath et al 2011: Appendix E, Page 6). While Gilreath notes that she analyzed most of the artifacts, there is no detailed discussion in the report nor is there an individual analysis for each artifact in the catalog (Gilreath et al 2011: Appendix E, Page 6).

No choppers are identified within the MNA catalog compiled in 2022, though several bags of stone artifacts are present in the inventory. During the re-analysis for this project, several choppers were identified, intermixed with hammerstones and labeled by MNA as “miscellaneous”. I identified five choppers within the Catclaw Cave assemblage, including three large chopper pieces and four chopper fragments (see Figure 40). Using a USB-Dino Lite Microscope, I analyzed the choppers identified in the collection, looking for additional clues regarding breakage and use of the artifact. Examples of fractures are evident on each chopper suggesting they were utilized frequently.

Figure 40: A chopper recovered from Catclaw Cave (Swett).

Pulping Planes

At least one Pulping Plane was identified by Wright during his initial analysis which he describes as a “continuation of the process of making a chopper. The flaking, instead of being confined to the top of the cobble, was carried completely around the circumference, leaving a flat natural surface on one side, a humped protuberance on the other side and a shar cutting edge” (1954:28). No additional information is provided, though Wright did compare the pulping planes recovered from Catclaw Cave to those identified by Rogers in the Mohave area (Rogers 1939:65; Wright et al 2008:64).

No pulping planes were identified during the 2011 analysis completed by Gilreath and none of the artifacts cataloged at MNA were identified as pulping planes (Gilreath et al 2011: Appendix E).

As part of this project, I re-analyzed all cataloged miscellaneous stone, identifying two pulping planes which were previously cataloged as miscellaneous stone. The pulping planes show signs of use-ware and were examined using a USB-Dino Lite Microscope, where fractures and breaks were identified. I agree with Wright that the pulping planes are most similar to those recovered from sites throughout California and reported by Rogers (1939).

Hammerstones

Wright identifies an unknown number of hammerstones which are comprised of river cobbles, Wright notes that “nearly all the river cobbles in the cave showed some evidence of battering from use as hammerstones” (1954:29-30). Wright categorized the hammerstones as either irregular cobbles or hammerstones (Wright 1954:29-30). These consist of “quartzite cobbles that have been halved and quartered; the resulting fragment has a smooth handgrip and four shar cutting edges” (Wright 1954:30). Every quartzite cobble showed signs of hammering along the edges and included an “even strip along the edges” (Wright 1954:30). Additionally, Wright states that “this [type of] hammerstone is actually a mano that accompanies the slab metate of the area, as used by the Walapai [Hualapai] today for mashing yucca pods” (Wright 1954:30; Euler and Dobyns 1983:256; and Wright et al 2008:63).

In her re-analysis in 2011, Gilreath identifies hammerstones within the Catclaw Cave assemblage but did not identify the number of hammerstones found during her analysis, though 24 artifacts are recorded in the uncatalogued box (Gilreath et al 2011: Appendix E, Page 6).

I analyzed the miscellaneous stone identifying nine hammerstones within the Catclaw Cave assemblage located at MNA (see Figure 41). The hammerstones were analyzed using a USB-Dino Lite Microscope for evidence of use-ware analysis during this project. The evidence of “battering on every edge” of the identified hammerstones as recorded by Wright (1954:30) was noticeable during the re-analysis in 2022. Ethnographic accounts shared by Euler and Dobyns (1983:256) further suggest use of hammerstones by the Hualapai in preparing botanical specimens including yucca pods. An abundance of botanical material was recovered from Catclaw Cave, including yucca pods and gourd seeds suggesting hammerstones at the site were utilized to mash and prepare botanical specimens, though no botanical remnants were identified using the USB-Dino Lite Microscope.

Figure 41: Hammerstone collected from Catclaw Cave (Swett).

Miscellaneous Stone

Three specimens are reported by Wright as being miscellaneous stone and are described as possible “polishing stones or merely highly polished river pebbles” (Wright 1954:30). Two additional river cobbles are identified, though Wright did not identify the specific tool type, he did suggest the stones were used for grinding paint as they were “heavily stained with red ochre and manganese” (Wright 1954:30).

During re-analysis in 2011, Gilreath did not elaborate on the stone artifacts identified within the Catclaw Cave collection housed at MNA (Gilreath et al 2011: Appendix E, Page 6). Gilreath did state that six bags of “large cobble tools (cores, hammerstones, grinders)” were analyzed, though these artifacts are not identified individually in the updated catalog nor are they discussed in detail in the report (Gilreath et al 2011: Appendix E, Page 6).

The MNA Catalog contained nine entries of miscellaneous stone and one entry relating to a polishing stone or river pebble. Upon re-analysis of the collection for this project, I identified a river polishing stone and two river cobbles that have residue of red ochre. The polishing stone shows signs of use, scrapes along both sides of the stone suggest it was used to polish bone tools at the site. Polishing stones recovered from Hohokam sites in Arizona showed signs of use in the polishing of wooden or bone specimens (Adams 2013:9.26-27). Polishers found at site AZ BB: 13:6 and dated to the Cienega phase contained use-ware patterns like those frequently seen on ceramic polishing stones (Adams 2013:9.26-27). The polishing stone recovered from Catclaw Cave did not exhibit extraneous use, suggesting it was not used for lithic tool polishing, but rather utilized for ceramic, wood, or bone tools. Based on re-analysis of this artifact, its use-ware patterns, and the recovered assemblage, the polishing stone was used in ceramic production and bone tool polishing. Neither of the two river cobbles found during re-analysis associated with this project were "heavily stained" with red ochre as Wright (1954:30) notes in his thesis. Stains of red ochre are evident on two river cobble fragments, which based on use-wear analysis completed during this project using a USB-Dino Lite Microscope, were utilized as grinders. Red ochre pigment is meshed on the surface and within scratches evident on each grinder (see Figure 42).

Re-analysis completed during this project also identified three unidentifiable stone tools within the assemblage, these artifacts are not flaked and are manuports. These tools are finely shaped thin, and smoothed and are completely unique from any of the other artifacts recovered from Catclaw Cave.

Figure 42: One of the polishing stones recovered from Catclaw Cave (Swett).

Groundstone

Wright identifies two metates and a number of manos within his initial analysis of the artifacts recovered from Catclaw Cave (Wright 1854:28-29). No exact counts are provided for the manos recovered, though (see Table 15) Wright notes these artifacts are similar to the unifacial and bifacial manos recovered from Willow Beach (Wright 1954:29; Schroeder 1961; and Wright et al 2008:62).

Table 15: Groundstone Reported by Wright (1954:28-29).

Artifact		Count
Groundstone		
	Metates	>1
	Manos	>1

Metates

In the 1954 thesis, Wright identifies two types of metates which are represented by one specimen each. The slab metate or milling stone recovered from Catclaw Cave is identified by Wright as fragmentary only, "consist[ing] of a thin slab of basalt" with " [t]he edges sometimes show[ing] smoothing" (1954:29). The "working surface shows slight evidence of working and a trough is never apparent. This type is used at the present time by the Walapai for a base plate upon which yucca pods are mashed" (Wright 1954:29; Euler and Dobyns 1983:256; and Wright 2008:62). A basin metate is reportedly "represented by a single specimen… one end had been broken off but the basin was nearly complete" (Wright 1954:29). According to Wright, "the basalt boulder from which the metate had been worn showed no evidence of shaping other than natural wear from transport in the river" (1954:29).

During Gilreath's analysis of the collection in 2011, she notes that no metates were identified within the collection (Gilreath et al 2011:50).

I also analyzed the lithic assemblage recovered from the site and reconciled all artifacts analyzed by Wright (1954; et al 2008) and Gilreath (2011: Appendix E) with the current MNA Catalog. No metates were present in the collection housed at MNA. No additional information was identified suggesting the metates were housed at another facility. Gilreath notes that "four boxes of material from Catclaw Cave" that were not accessioned or cataloged were identified at MNA (Gilreath et al 2011:50). I did not identify any additional boxes of artifacts potentially associated with Catclaw Cave at MNA. It's probable the metates from Catclaw Cave are currently sitting in the MNA repository in an un-accessioned, un-cataloged, and possibly un-provenienced box which has yet to be identified by curators as part of the Catclaw Cave collection.

Manos

Wright identifies an unknown number of manos in the Catclaw Cave collection, stating that “all manos recovered were small circular single-handed types” (Wright 1954:29). The manos recovered from the site are “both unifacial and bifacial” and are similar to the manos found in “layer F at Willow Beach” according to Wright (1954:29; Schroeder 1961; and Wright et al 2008:62-64).

Like the metates, Gilreath states the manos from Catclaw Cave were not identified during her re-analysis at Catclaw Cave (Gilreath et al 2011:50).

In 2022, I visited the MNA repository and re-analyzed the Catclaw Cave collection. No manos were present within the MNA catalog provided to the author by the repository in 2022. No manos were identified during the analysis associated with this project.

Minerals

Wright only identifies turquoise in his initial report on the 1949 excavations from Catclaw Cave (1954:30-31). No additional information is provided regarding any other minerals recovered from the site in the 2008 publication (Wright et al 2008:62). The first recorded minerals outside of turquoise appear in Gilreath's re-analysis from 2011 (Gilreath et al 2011: Appendix E). I identified thirty-one pieces of mineral within the assemblage (see Table 16). .

Table 16: Minerals Identified During this Project.

Artifact		Count
Mineral		*24*
	Turquoise	4
	Hemtate	21
	Gypsum	1
	Limonite	4
	Salt	1

Turquoise

In his thesis, Wright identifies two pieces of turquoise recovered from the site (Wright 1954:30-31). One of the turquoise pieces is recorded as a “half of a flat circular boad, perforated from one surface” while the second piece is a “small unworked fragment” (Wright 1954:30).

During re-analysis in 2011, Gilreath identified two additional turquoise beads which had not been identified in Wright’s initial thesis discussion and were not correctly cataloged (Gilreath et al 2011: Appendix E).

I identified the first turquoise piece described by Wright, the circular boad, and the second unworked fragment. I also identified the two additional turquoise beads typed by Gilreath in 2011, thus the total number of turquoise specimens identified from the site in 2022 was four. In association with this project, three pieces of turquoise were examined using the USB Dino Lite Microscope. Of the four turquoise beads, only two were correctly cataloged in the original MNA catalog. No use wear patterns were noted on the turquoise pieces examined, but one turquoise piece had been molded into a circular bead and flattened similar to a coin, this was most likely used as a necklace or other decorative piece. The other two pieces were unworked (see Figure 43).

It seems likely that the turquoise found at Catclaw Cave was most likely from southern Nevada, northwestern Arizona, or southeastern California. Several turquoise mines within the region were identified during turquoise sourcing completed by Thibodeau et al. in 2015. Utilizing turquoise housed in the geological collection at MNA amassed by archaeologist Phil Weigand in the 1970s, Thibodeau et al. attempted to identify turquoise mines in the southwest in relation to pre-Hispanic mining and utilization of turquoise in the pre-contact world (Thibodeau et al. 2015).

While no turquoise sourcing was done during this project due to the limited amount of turquoise from the site, the proximity of Catclaw Cave to identified turquoise mines in the region suggest the turquoise originated in the area (see Figure 44). The Crescent Peak turquoise mine in southern Nevada along the Colorado River, the Halloran Springs turquoise mine in southeastern California, and the Mineral Peak turquoise mine in northwestern Arizona are located within close proximity to Catclaw Cave. Additional turquoise mines in southeastern Arizona and central Nevada are also excellent candidates for turquoise production, though the lack of turquoise at the site further suggests that use of turquoise was not prominent during use of the site and came from one of the three local mines.

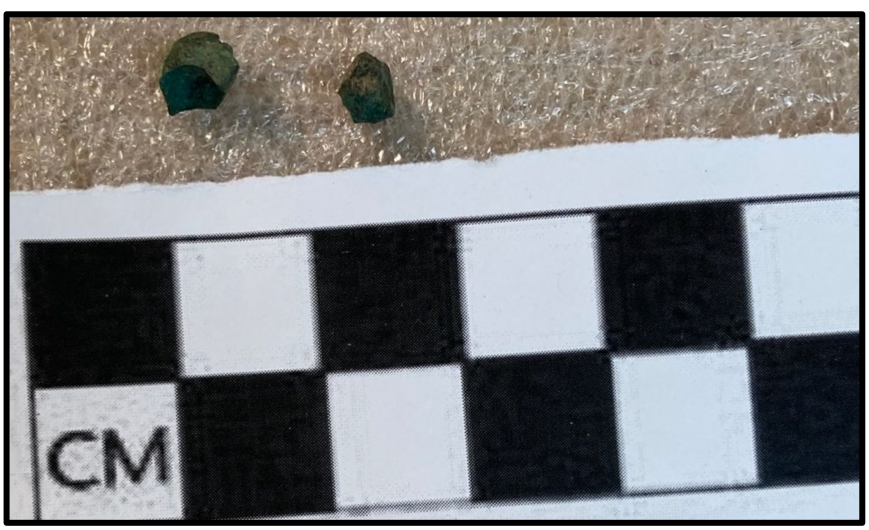

Figure 43: Turquoise recovered from Catclaw Cave in 1949 (Swett).

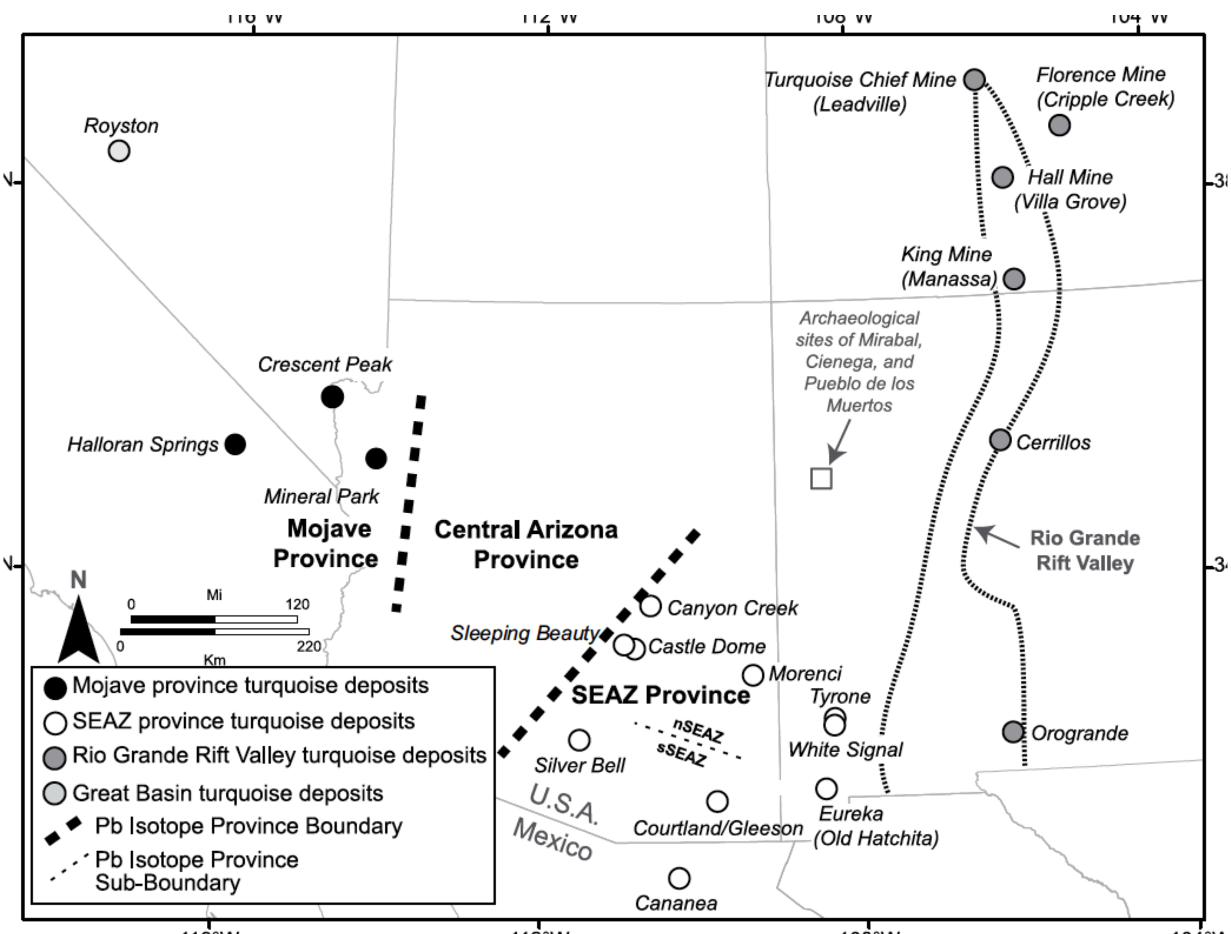

Figure 44: Map of turquoise mines identified in the Southwest during isotope testing (Thibodeau et al 2015).

Hematite

The hematite cache discussed by Wright was "recovered from a pit in the cave where it had been stored in a grass bundle. This grass wrapping contained 15-20 lumps of extremely fine-grained red ochre striated with yellow. A few of the lumps showed evidence of use" (Wright 1954:31).

Gilreath also identifies the hematite cache in her re-analysis of the collection in 2011, but also identifies an additional piece of hematite previously cataloged as a miscellaneous stone (Gilreath et al 2011: Appendix E). No additional information regarding the hematite pieces is present in the report (Gilreath et al 2011: Appendix E).

Re-analysis associated with this project confirmed the hematite cache existed within the Catclaw Cave collection housed at MNA (see Figure 45). The author reviewed the additional piece of hematite identified by Gilreath et al. (2011: Appendix E) and confirmed this is hematite rather than a flake. The hematite mineral recovered at the site confirms that hematite was used to add red colored designs to select figurines, sherds, and bark recovered from the site and discussed in greater detail in the appropriate artifact section.

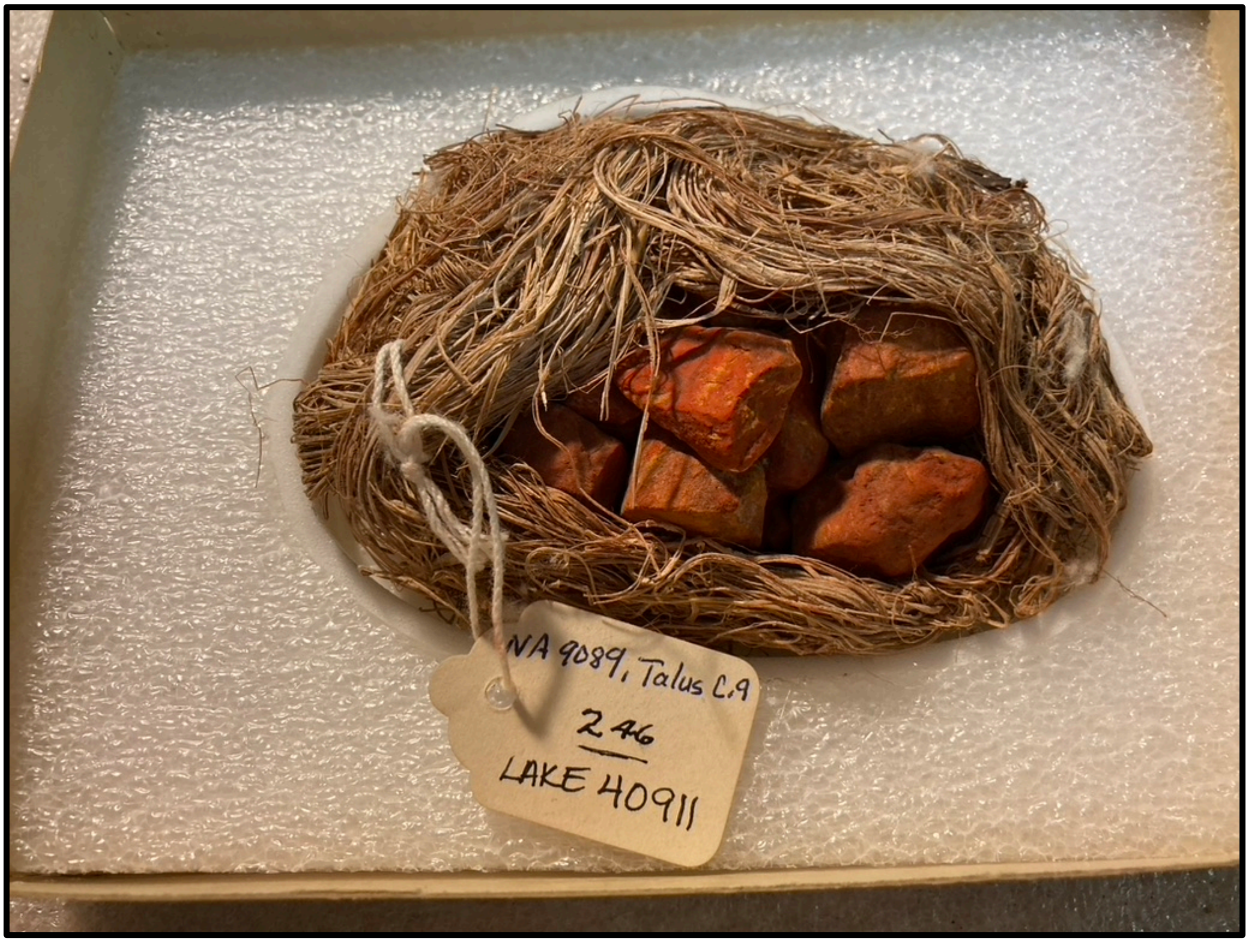

Figure 45: The Hematite Cache recovered from Catclaw Cave (Swett).

Salt

Wright does not identify any salt pieces within the Catclaw Cave collection in his thesis or the 2008 publication (Wright 1954:30-31; Wright et al 2008:63).

Gilreath identifies one piece of salt within the Catclaw Cave during her analysis of the collection in 2011 (Gilreath et al 2011: Appendix E). No additional information is provided in the catalog (Gilreath et al 2011: Appendix E).

During re-analysis associated with this project, the salt piece was identified within the collection housed at MNA (LAKE 40956). No additional salt is recorded from Catclaw Cave, though salt is rarely preserved within archaeological contexts (Lyneis 1995:83). The one salt specimen recovered from Catclaw Cave suggests salt was utilized at the site, but without additional specimens it's difficult to determine if salt was heavily utilized at the site.

Gypsum

As with the salt crystals, Wright does not identify any gypsum pieces within the Catclaw Cave collection in his thesis or the 2008 publication (Wright 1954:30-31; Wright et al 2008:63).

During analysis in 2011, Gilreath identifies one piece of gypsum within the Catclaw Cave collection (Gilreath et al 2011: Appendix E, Page 4). No additional information is provided in the catalog (Gilreath et al 2011: Appendix E, Page 4).

Analysis completed for this project resulted in the identification of a gypsum crystal specimen, the same artifact initially typed by Gilreath in 2011 (Gilreath et al 2011: Appendix E, Page 4). Gypsum crystals are found within the assemblages of archaeological sites across the Colorado River Valley, at least eighteen gypsum pieces were identified at the Salt Cave within the Lost City Complex in the Overton Arm of Lake Mead. This suggests gypsum, much like salt, was a frequently traded and utilized item in the region. The limited number of recovered minerals from Catclaw Cave may be from lack of preservation at the site.

Limonite

Limonite minerals are not identified within Wright's initial research reported in his thesis (1954:30-31) though Gilreath identifies one piece of limonite during her re-analysis of the Catclaw Cave collection in 2011 (Gilreath et al 2011: Appendix E). No additional information is included in Gilreath's report regarding limonite from Catclaw Cave (Gilreath et al 2011: Appendix E).

During re-analysis completed for this project, the limonite mineral identified by Gilreath was re-located within the collection housed at MNA (LAKE 41008). Additional limonite minerals were identified during the 2022 analysis for this project, LAKE 41005 contains three pieces of limonite minerals which were previously designated as unknown. Limonite is often used in pigment, the yellow ochre residue identified on the pigment stones suggests limonite and hematite were utilized as pigments at Catclaw Cave.

Shell

In 1954, Wright identified three Olivella shell beads from the site, stating that "three small Olivella shell beads were the only evidence of shell within the cave. The tips had been ground from the shell and the entire shell probably used as a bead" (Wright 1954:38).

Gilreath confirms the three Olivella shells during her re-analysis in 2011, though no additional detail is incorporated into her report regarding the shell artifacts from Catclaw Cave (Gilreath et al 2011: Appendix E).

During re-analysis associated with this project, I identified the three Olivella shells within the assemblage housed at MNA. This is unusual since most archaeological sites throughout the Mojave Desert have large caches of Olivella shells. The lack of Olivella shells suggests that the peoples using Catclaw Cave had little use for shells during their time at the cave. Perhaps shell was traded at Willow Beach and lithic materials or ceramic goods were taken back to Catclaw Cave instead. Alternatively, peoples using Catclaw Cave may not have been involved in shell trade.

Worked Bone

Wright’s 1954 thesis states that “there were more unbroken artifacts of bone from the cave than of any other material… generally in excellent condition. In some cases, the tools still retained dried flesh” (Wright 1954; Wright et al 2008 p. 65). No official counts are provided in Wright’s thesis but approximations can be made based on his descriptions of the artifacts (see Table 17).

Table 17: Worked Bone Recorded by Wright (1954)

Artifact		Count
Worked Bone		
	Notched scapaluae	2
	Eyeless Needles	>1
	Bone awls	>2
	Bone tinklers	3
	Bone die	1
	Bone snare pin	1
	Bone tube	1
	Bone spatula	1
	Bone disc	1
	Misc bone	>3

Notched Scapulae

Wright identifies several different types of worked bone within the Catclaw Cave collection, including two notched scapulae (Wright 1954:33; Wright et al 2008:65). While, Wright initially identifies these artifacts as "fleshers" he describes that both "showed polishing along other proximal and distal ridges and in the concavity adjoining the socket" (Wright 1954:33). Additionally, Wright identifies that the "ridges show evidence of breakage, but continued use has polished the broken edges. This part of the tool undoubtedly functioned as a flesher. The polish in the concave curve near the socket is possibly due to working of cordage or some similar material as the curve is too small to admit anything of larger size. Both of the specimens retained dried tendinous material within the socket" (Wright 1954:33).

Gilreath re-located the two-scapula identified by Wright within the assemblage housed at MNA during her re-analysis in 2011 (Gilreath et al. 2011: Appendix E). During her re-analysis, Gilreath identified the flesher's as belonging to either mountain sheep or mule deer (Gilreath et al 2011: Appendix E). Additional analysis completed by Gilreath suggests the wear patterns on the scapulas are consistent with the artifacts use as a flesher (Gilreath et al 2011: Appendix E).

During this project, the two scapulae were identified in the assemblage housed at MNA. I agree with the analysis and conclusions presented by Wright (1954:33) and Gilreath (et al 2011: Appendix E). The scratches and apparent breakage are congruent with the use of the scapula artifacts as fleshers.

Tinklers

Wright also identified bone tinklers during the 1949 excavation, though he does not identify a specific count, he does describe the tinklers as “hav[ing] been polished and threaded with either buckskin or willow bark string which has then been knotted to prevent loss” (Wright 1954:36). Additionally, Wright notes the tinklers include a “strip of buckskin [which] had been dyed red and cut along the margin into fringes, only one of which retains a tinkler (Wright 1954:36). Wright interprets the bone tinklers as part of an article of dress (1954:36).

While Gilreath identifies three bone tinklers within the Catclaw Cave collection, specifically these tinklers are recorded as having been made from bird bones, though Gilreath does not identify the type of bird (Gilreath et al 2011: Appendix E). One tinkler is recorded as being connected to a string of willow bark painted (Gilreath et al 2011: Appendix E). A second tinkler is recorded by Gilreath and includes a leather tanned buckskin attached to the tinkler (Gilreath et al 2011: Appendix E). No additional interpretations are included in the report.

During this project, I identified three bone tinklers within the Catclaw Cave assemblage housed at MNA. The tinklers are in good condition, as the tinklers still have the attached string, rawhide, and leather components recorded by Wright (1954:36) and Gilreath (2011: Appendix E). I agree with Wright’s interpretation that these tinklers were associated with clothing. Ethnographic accounts of suggest clothing worn by the Mojave peoples consisted of breach clout for men and knee-length skirts for women both made out of willow bark (Stewart et al 1983:59). Additional ethnographic accounts of the

Havasupai identify men's fashion consisting of a shirt, breechclout, leggings, moccasins, and a headband; while, women's clothing consisted of a short-under apron, long buckskin dress, moccasins, and a rabbit skin blanket (Schwartz 1983:17). Hualapai dress in discussed in ethnographic accounts as consisting of buckskin and juniper bark in both women's and men's fashion; though traditional women's dress included a "double apron belted at the waist, and buckskin tied around the calf for travel through brush" and men's clothing include "short-sleeved hide shirt[s], breechclout, and moccasins" (McGuire 1983:34; and Kroeber 1935:99-111). The prevalent use of willow bark in traditional dress suggests these artifacts are associated with clothing.

Bone Awls

There are several bone awl types recovered from Catclaw Cave that are recorded by Wright. One type of bone awl described in Wright's thesis is an eyeless needle which he describes as having "been worked from splinters removed from the shaft of a long bone. The splinters have been smoothed over the entire surface. The points are highly polished, probably through use. One specimen showed traces of red paint on the base. The paint appeared to be accidental staining rather than a direct attempt at decoration" (Wright 1954:34-35). The second type of awl identified from the site is the basketry awl, "[t]hese awls have been constructed by splitting the joint end of a cannon bone. Evidence of the joint is still visible despite over-all smoothing. From the joint, which forms the base, the bone is worked own in a long smooth taper to a point… In this region the taper curves inward and the remainder of the awl is worked into a very thin spine-like tip. Some of the specimens retained particles of resin at the base, presumable from hafting" (Wright 1954:35). The final type of awl recovered from the site is the broad tipped awl stating, "this type is also constructed from the shaft of a long bone in the manner of the eyeless needles. In variance with the former, the specimens are quite broad with a heavy wedge-shaped point. The awls are smoothed over the entire surface" (Wright 1954:35). Wright does not identify the number awls recovered from the site but does note several fragmentary awls which were not typed (Wright 1954:36).

Gilreath identifies thirteen awls within the Catclaw Cave collection during her analysis in 2011, but does not identify the type of awl within the collection (Gilreath et al 2011: Appendix E).

All thirteen awls identified in Gilreath's report (et al 2011: Appendix E) were found at MNA during this project (see Figure 46). I found two awls that are initially recorded by Wright as eyeless needles (Wright et al 2008:67), five basketry awls discovered by Wright (et al 2008:67), and one broad tipped awl (Wright et al 2008:67).

Figure 46: A bone awl recovered from Catclaw Cave (Swett).

Bone Die

Wright records only one bone die within the Catclaw Cave assemblage and describes the artifacts as a “rectangular fragment of long bone with rounded ends, one flat and one convex side” (Wright 1954:37). Wright notes that this bone die similar to bone die artifacts recovered from the Lost City (Wright et al 2008:70). During her re-analysis of the assemblage in 2011, Gilreath notes a “gaming piece” within the collection which is “polished” and contains “siriat[ions[“ (Gilreath et al 2011: Appendix E, Page 4).

The bone die was identified within the MNA assemblage during this project. The seriations recorded by Gilreath (et al 2011: Appendix E) are clearly visible. During re-analysis in association with this project, the seriations are incisions used to decorate the die (see Figure 47).

Figure 47: A bone die recovered from Catclaw Cave. Note the incision marks on the bone die (Swett).

Bone Snare Pin

One bone snare pin is recorded by Wright, who states the artifact must "have been a broken awl point re-used as a snare pin" (et al 2008:68). Wright notes a willow bark string which is wrapped around the pin and appears to "hold a single buckskin thong to the bone peg. The wrappings extend across the broken edges" (Wright et al 2008:68).

Gilreath also identifies the bone snare pin within the Catclaw Cave collection, identifying the polished bone tool in her collection review (Gilreath et al 2011: Appendix E). No additional information is included.

During my visit to MNA, I encountered the singular bone snare pin identified by Wright (1954:36) and Gilreath (et al 2011: Appendix E). The artifact is in good condition and the willow bark wrapping identified by Wright (1954:36) is still round tightly around the bone pin (see Figure 45).

Bone Tube

One item is recorded as a bone tube in Wright's thesis, where he states, the "item was incomplete and no determination of usage could be made. It consisted of a highly polished bird bone that had been thinned… [and] the bone had been cut longitudinally in half. Both ends had been broken" (Wright 1954:37).

Gilreath does not record a bone tube within her re-analysis of the collection and none of the analysis suggests the artifact was identified and re-typed (Gilreath et al 2011: Appendix E).

Following re-analysis of the assemblage in association with this project, I identified the "bone tube" recorded by Wright (1954:37). This artifact is not a bone tube, but rather a modified bone tool. There is no indication to suggest the tool was utilized as a "tube" and it was most likely part of a tinkler.

Bone Spatula

Within his 1954 thesis and the 2008 publication, Wright identifies a bone spatula fragment which he describes "may be either a portion of an awl handle or the beginning of a bone die. The fragment is flattened on one side and is convex on the other with one rounded and on broken end, and over-all polish" (Wright et al 2008:68).

Gilreath does not identify a bone spatula in her re-analysis of the Catclaw Cave collection (Gilreath et al 2011: Appendix E).

Upon re-analysis for this project, I identified the "bone spatula" recorded by Wright, this artifact is a long bone tool and is not a bone spatula.

Bone Disc

Wright identifies an attempted bone disc within the Catclaw Cave collection (Wright et al 2008:68). Gilreath also identifies this artifact as a gaming piece, more specifically a bone disc which is outlined in the updated catalog completed during the re-analysis conducted in 2011 (Gilreath et al 2011: Appendix E, Page 2).

The bone disc was identified within the MNA collection in association with this project. The bone die is smoothed and I agree with Wright that the gamin piece appears more circular than triangular (2008:69).

Misc. Bone

An unknown number of miscellaneous bones were identified by Wright, who notes all of these artifacts exhibit signs of “polishing, grooving, or drilling” also identifying two bone tools with red pigment and one with green (Wright et al 2008:68). Gilreath does not identify any miscellaneous painted bone tools, though she does note paint stains on awls and cone tools recovered from the site (Gilreath et al 2011: Appendix E). I identified one bone tool, a possible awl, with green pigment housed within the collection at MNA and one bone tool fragment with red pigment housed at MNA. No additional miscellaneous bone materials were identified.

Worked Hoof and Antler Bone

Several artifacts attributed to hoof and antler bones were recovered during the 1949 excavation and re-analyzed in 2011 where additional information was compiled into an updated catalog of the collection (see Table 18).

Table 18: Worked Hoof and Antler Bone Artifacts Recorded by Wright (1954).

Artifact		Count
Worked Hoof and Bone		*3*
	Hoof tinklers	2
	Antler flaker	1

<u>Hoof Tinklers</u>

Wright identifies two hoof tinklers in his 1954 thesis, where he states that “these items were used in a similar way to those made of bone” (1954:36). These artifacts are described by Wright as “either mountain sheep or deer dew claws. Holes were drilled in the hoof on either the interior or exterior at the extreme edge and then threaded with buckskin (1954:36).

Gilreath identifies two hoof tinklers in her re-analysis and reports one tinkler is most likely comprised of a deer hoof (Gilreath et al 2011: Appendix E). While Gilreath identifies both hoof tinklers, only one artifact includes a leather string according to the updated catalog (Gilreath et al 2011: Appendix E).

During this project, I identified both hoof tinklers within the collection housed at MNA, only one of the hoof tinklers had an attached leather string, though both hoof tinklers were in good condition. The hoofs are the same size and shape and are most likely from a mule deer. The hoof tinklers were most likely part of a fabric probably utilized for dress.

Antler Flaker

One antler flaker was identified by Wright at Catclaw Cave and is described as a "chisel-pointed fragment of antler presumed to be a flaker" (1954:36). No additional information regarding the flaker is provided in his thesis nor is there additional information identified in the 2008 publication (Wright et al 2008).

Gilreath identifies a burned worked antler bone during her re-analysis of the collection in 2011, but does not identify the artifact as a flaker (Gilreath et al 2011: Appendix E). No additional information is provided in the report.

During this project, I encountered the worked antler bone tool within the collection housed at MNA, the specimen is burned but in good condition. The antler may have been part of a flaking tool kit, but no additional antler fragments were identified in the collection. Antlers are frequently used in flint knapping and are essential tools in lithic production.

Horn Ladle Spoons

Wright discusses a Bighorn Sheep horn ladle spoon in his thesis, looted from Catclaw Cave in 1940 by prospectors, within the 2008 publication (Wright et al 2008:69). This artifact is mentioned in the 1949 preliminary report and appears in a footnote within the 1954 thesis (Wright 1949:5; 1954:47, 2). In 2008 the spoon was unrecoverable; the artifact was not located in 2011 during Gilreath's research (Gilreath et al 2011: Appendix E) nor was the artifact found during this project.

Additional ladle spoons have since been identified within the Lost City assemblage, illustrations of the recovered ladle spoons from the Lost City are included in later publications, but no detailed description is found (Shutler 1961: Plate 82b, Page 84; Wright et al 2008:69). Ethnographic research identifies Bighorn Sheep ladle spoon construction and use amongst the Havasupai and Hualapai and note that these spoons were frequently traded between the Havasupai and the Hopi (Kroeber 1937:97, 98; Spier 1928:145; Wright 1979:48; Wright et al 2008:69). The manufacturing process was recorded by Spier and states that "[a]fter the handle is hacked and trimmed to size, the horn is soaked and buried in wet sand from three to six nights or until it is fairly soft. The grease of the mountain sheep and the mountain lion are rubbed into the horn, which Is warmed at the fire. The handle is then bent into shape" (Spier 1928:145; and Wright et al 2008:69). The horn is eventually split and the "sides wedged apart with a stick and the edges trimmed" to form the bowl (Spier 1928:145; and Wright et al 2008:69). In order to ensure the shape of the spoon stays, the bowl is "filled with dirt, carefully propped up, and laid aside for a week to harden: (Spier 1928:145; and Wright et al 2008:69).

Wright notes the awls and spatula recovered from Catclaw Cave as reminiscent of bone tools identified within the Cohonina Branch of the Patayan including Medicine Cave (Bartlett 1934:41; Colton 1939b:28; and Wright et al 2008:70). Ultimately Wright compares the recovered worked bone and antler specimens to those recovered from sites near Flagstaff, Arizona; specifically, NA5137 and NA5166 discussed by McGregor (1951) (Wright et al 2008:70). Tree ring dates obtained from NA5166 suggest the site was predominately used between 638 and 765 A.D.; while NA5137 is believed to date to 1070 A.D. (McGregor 1951:56, 67, 113-116, and 121; and Wright et al 2008:70). Additionally, Wright compares the scapulae artifacts found at Catclaw Cave to those recovered at Lovelock Cave in northern Nevada and notes that this particular artifact type is widely distributed during pre-ceramic periods but are not found within the ceramic period era at the Lost City (Loud and Harrington 1929:40, Plate 13j; Shutler 1961: Plate 73t-v; and Wright et al 2008; 70).

Faunal Remains

Wright recovered an extensive faunal assemblage during the 1949 excavations at Catclaw Cave, including the remains of seventeen different species and one paleontological specimen (see Table 19). No exact counts are provided for the faunal remains outside of the fish specimens and the paleontological specimen recovered.

Table 19: Faunal Remains Recorded by Wright (1954).

Artifact		Count
Faunal		
	Big Horn Sheep (Paleontology)	1
	Bison	Unknown
	Beaver	Unknown
	Bighorn Sheep	Unknown
	Bobcat	Unknown
	Coyote	Unknown
	Cottontail	Unknown
	Ground Squirrel	Unknown
	Jackrabbit	Unknown
	Kangaroo Rat	Unknown
	Packrat Woodrat	Unknown
	Quail	Unknown
	Owl	Unknown
	Hawk	Unknown
	Turtle	Unknown
	Lizard	Unknown
	Undi. Amphibian	Unknown
	Fish	375

Faunal Remains

An unknown number of beavers, bobcat, bighorn sheep, coyote, cottontail, ground squirrel, jackrabbit, kangaroo rat, packrat, woodrat, quail, owl, hawk, turtle, lizard remains and the remains of an unidentified amphibian were recovered during the excavations at Catclaw Cave. While the remains were analyzed by curators at Michigan, there are no official counts or discussions revolving around the number of identified species (NIS) within the 1954 thesis or the 2008 publication (Wright 1954:59-60; Wright et al 2008:83-84).

While Michigan was contacted regarding the Catclaw Cave collection in 2022, none of the faunal remains were found and therefore none of these specimens could be re-analyzed as part of this project.

Bison Cone

A bison horn cone was also identified at the site, though the artifact was not identified within the assemblage at MNA by Gilreath in 2011 (et al 2011: Appendix E) or by the author during this project. Wright notes that the bison horn core was identified in Level 1 of the excavated cave layers stating that the artifact was found "…so far from [an] existing or known bison range…" (Wright et al 2008:83). The bison horn cone "…may indicate the existence of trade between the occupants of Catclaw Cave and areas as far east as New Mexico" (Wright et al 2008:83). While there was "no evidence" of potential trade in California or Arizona, additional archaeological evidence uncovered at the Babocomari Village suggests bison were prevalent in Arizona prior to the arrival of the Spanish (Roe 1951:282, 275; Di Peso 151:3, 12, 240; and Wright et al 2008:83).

Additional excavations at the Awatovi, Bat Cave, Bear Ruin, Chetro Ketl, Hawikuh, Las Colinas, Mesa Verde Site 34, Mogolloon Village, Murray Springs, Point of pines, Ridge Ruin, Snaketown, and Swartz Ruin have all resulted in the identification of bison bones amongst the faunal assemblage (Johnson 1981:277-282; and Wright et al 2008:83-84). Non-cultural remnants of bison have been identified in southern Arizona (Mead and Johnson 2004), but Catclaw Cave is “the farthest western occurrence known” (Wright et al 2008:84)

<u>Fish Specimens</u>

Wright recovered 375 fish specimens during his excavation of Catclaw Cave in 1949, these specimens were initially analyzed by Robert Miller and the results were published in 1956 (Miller 1955). The fish specimens were initially housed at the University of Michigan, but may have been sent to the Amerind given Barton’s position at the time, or possibly even sent to the San Diego Museum of Us (Formerly the Museum of Man) though neither of these institutions had a record of the fish specimens when contacted in 2022 for this project. There is hope that as Universities and Museums continue to work through backlogged catalogues and collections that the fish specimens will be discovered.

Review of Miller’s publication regarding the recovered fish specimens from Catclaw Cave suggest that fish were a major part of the diet of habitants of Catclaw

Cave (Miller 1955). Of the 375 recovered fish remains, only 100 fish remains were in good enough condition to determine specific species. Three species were identified, though the additional 275 unidentified fragments may represent a fourth unidentifiable species (Miller 1955; Ellis 1914; Snyder 1915). The three identifiable species are native to the Colorado River and are frequently discussed in ethnographic accounts regarding fishing in the region by Indigenous peoples and American settler (see Table 20) (Miller 1955; Rostlund 1952; and Ellis 1914). The faunal assemblage recovered from Catclaw Cave includes two fish species that were also recovered from sites throughout the Lower Colorado River Basin in Arizona, specifically Quiburi located in southeastern Arizona (see Figure 48) (Miller 1955; Di Peso 1953).

The Razorback Sucker and Colorado Pikeminnow were also identified within the excavations of the Hohokam site, Snaketown, though the fish remains were initially thought to belong to a sturgeon fish (Gladwin, Huary, Sayles, and Gladwin 1937; Miller 1955). Excavations at Quiburi, a historic settlement west of the San Pedro River and occupied by the Sobaipuri peoples also revealed a number of charred and marked fish remains belonging to the Colorado Pikeminnow (DiPeso 1953; Miller 1955). The identification of fish remains throughout central Arizona further suggests that the Razorback Sucker and Colorado Pikeminnow were major sources of food for Indigenous people living within the Colorado River Valley and its adjoining tributary units. The discovery of these two fish species within the Gila and San Pedro river systems offers further insight into the environmental landscape and suggests that there was contact between Patayan peoples and the Hohokam in central Arizona, though it seems unlikely the Indigenous people utilizing Catclaw Cave had direct contact with the Hohokam while camping at Catclaw.

Table 20: Fish Remains Recorded by Miller (1955).

Scientific Name	Common Name	Name Used by Miller in 1955	Current Size of Species	Size of Faunal Remains	Number of Fish Represented	Number of Faunal Bones
Xyrauchen texaus (Abbott)	Razorback Sucker	Humpback Sucker	Less than 3ft (USFWS 2024)	2-3ft	7	40
Ptychocheilus lucius (Girard)	Colorado Pikeminnow	Colorado River S---- fish or Colorado Salmon	4ft (USFWS 2024)	4-5.5ft	6	54
Gila cypa (Miller)	Humpback Chub	Humpback Chub	1.5ft (USFWS 2024)	n/a	2	2

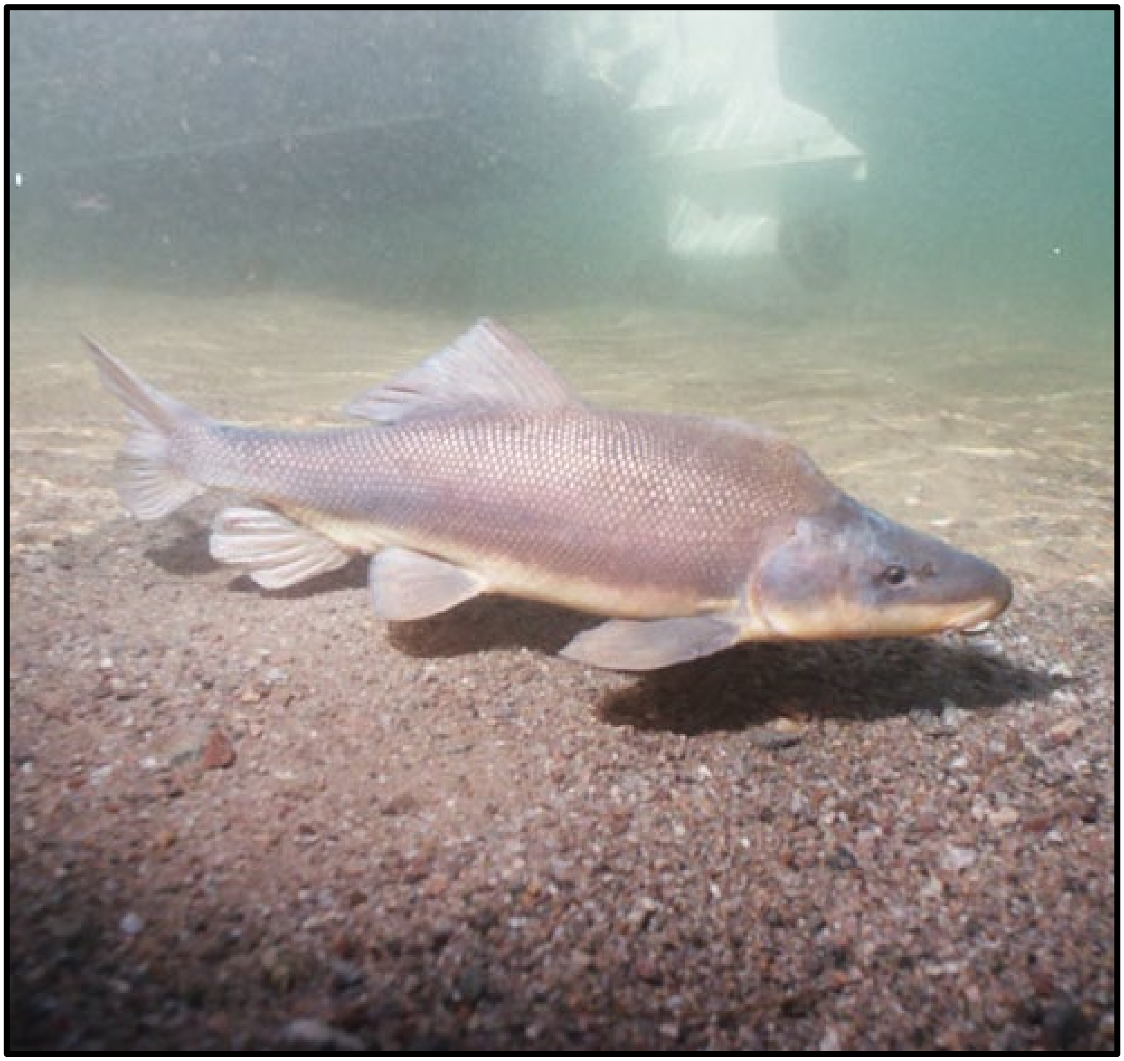

Figure 48: Razorback Sucker, one of the fishes identified at Catclaw Cave by Miller (1955) (Multi-Species Conservation Program, Bureau of Reclamation 2022).

Paleontological Specimen

While the fish remains represented the largest number of faunal materials recovered from the site, the partial right lower jaw of a bighorn sheep was also identified during the 1949 excavation (Wright et al 2008:83). The bighorn sheep remains were analyzed by Claude Hibbard of Michigan and determined to be Pleistocene aged (Hibbard and Wright 1956). Noting that the remains were larger than those associated with more recent Holocene-era *Ovis* species recovered in North America, Hibbard proposed that these remains represented a previously-unidentified species of bighorn sheep, which he named *Ovis catclawensis (*see Figure 49) (Hibbard and Wright 1956:106-107). Recovered in lose stratigraphy, it seems unlikely that the *Ovis catclawensis* remains are associated with human use of Catclaw Cave. This further suggests that erosion and animal activity had severely impacted the cave's stratigraphy, which in turn has substantially limited the ability to associated artifacts and ecofacts to particular periods of use.

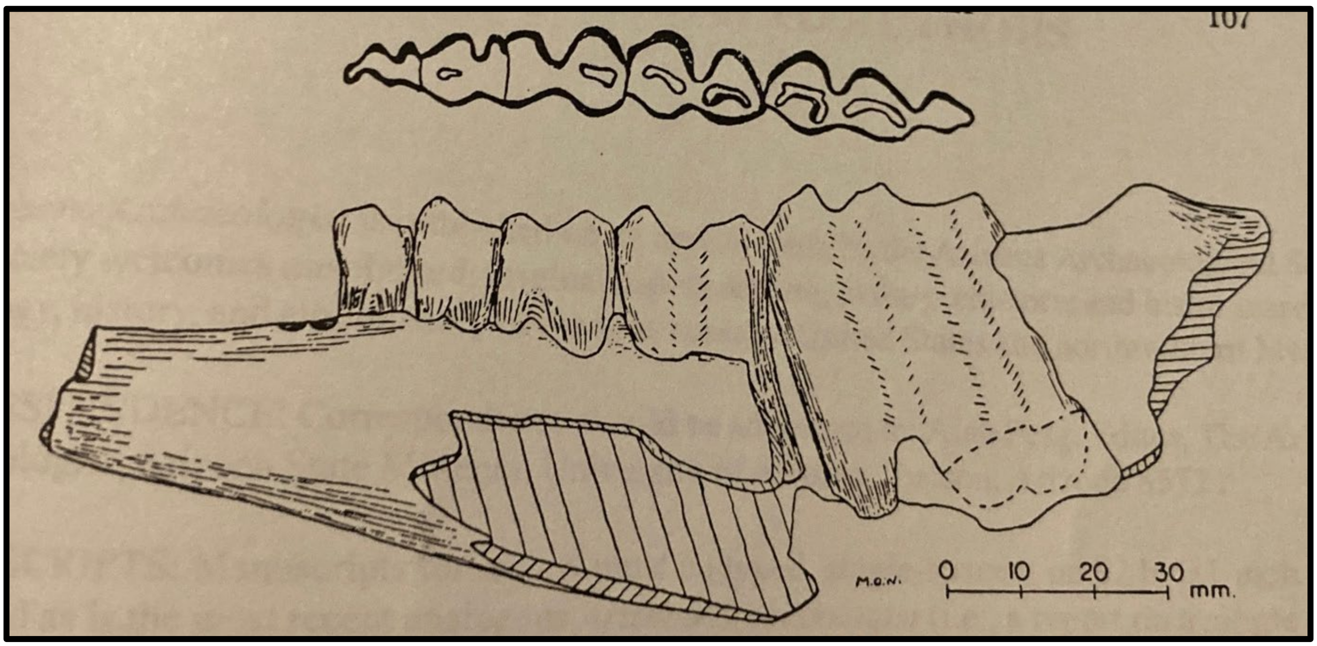

Figure 49: Sketch of the Big Horn Sheep jaw recovered from Catclaw Cave in 1949 (Hubbard and Wright 1956:107).

Perishables

The perishables recovered from Catclaw Cave were identified within the MNA assemblage and were re-analyzed in 2011 as part of the chronology study for southern Nevada conducted by Gilreath (et al 2011). No additional analysis was completed during this project, except to determine if the perishable collection was still maintained at MNA and if any additional information could be added to the analysis completed by Gilreath (et al 2011).

Ultimately Wright states that the perishable assemblage recovered from Catclaw Cave, “proved to be a disappointment as it was hoped the cave would furnish a good collection of perishables from the river area” (see Table 21) (Wright 1954:54). While a plethora of string materials were identified at the site, only one complete basket was identified at the site, a majority of the basketry was fragmented and little wood was recovered (Wright 1954:55).

Table 21: Perishable Artifacts Reported by Wright (1954:54).

Artifact		Count
Perishable Materials		
	String	>25
	Basketry	8
	Sandals	2
	Bark bundles	2
	Arrow shaft	1
	Hide	>9
	Misc wood fragments	>5

String Materials

Wright discusses the discovery of broken string throughout the cave in large quantities, identifying four specific types; willow bark, yucca fiber, questionable cotton, and Human hair and [rabbit] skin (Wright et al 2008:77). The Willow Bark strings identified by Wright is recorded in his thesis as consisting of "finely shredded willow bark in some instances retains portions of the inner bark adhering the fibers" (Wright 1954:49). Additionally, Wright notes that these willow bark fibers are "combined in a clockwise twist" and were only found in "short fragments" that showed no "evidence of color other than that of the natural fiber" (Wright 1954:49). Only two elements of yucca fiber string were discussed in Wright's thesis, he states these fibers were "twisted together in a counter-clockwise direction in almost all instances. All specimens were of natural color" (Wright 1954:49). Initial analysis of the yucca fiber string completed by Wright also identify the string-like artifacts as having been "twisted into loops which were alternated with straight sections along the entire length, and possibly represent[ing] a fragment of the weft element from a net" (Wright 1954:49).

Cotton string recovered from Catclaw Cave is "represented by very few specimens" which consist of "two elements combined in a clockwise twist" with "most of the fragments show[ing] use of paint, either red, black, or white, smeared on as a paste rather than a dye" (Wright 1954:51). Initial analysis completed during the 1954 thesis, suggests the fibers were stained a darker color as Wright states the "natural color of the fiber ranges from a light tan to white" (Wright 1954:51). Additionally, Wright identifies Human Hair within the string section, noting, "only one small section of human hair string 10.0 cms. in length was recovered. It was composed of two elements in a right-hand twist to form a strand" (1954:51). Within the same paragraph, Wright identifies a strand of [rabbit] skin string, which he states is "composed of small strips, apparently rabbit fur, two elements of which have been twisted counter-clockwise or in a left-hand twist to form an irregular string…" (Wright 1954:51). Wright identifies the cotton strings as part of a trade relationship between the Virgin Puebloans and the Patayan peoples, and identifies similarities between cotton strings from Catclaw Cave and those recovered from Willow Beach (Wright 1954:55; Schroeder 1961:98-99, 109-113, Table 4; and Wright et al 2008:77-78).

During the 2011 re-analysis, Gilreath identified twelve string materials and examined eleven string materials within the assemblage housed at MNA including one yucca string and one cotton string which have no provenience information apart from Catclaw Cave and are labeled as "problems" (Gilreath et al 2011:62, Appendix E, Page 4). Gilreath identified six willow bark strings within the Catclaw Cave collection, including two string fibers which had initially been identified as yucca strings by Wright (Wright 1954:49-51; and Gilreath et al 2011: Appendix E).

Three cotton strings were identified during the re-analysis, including one originally identified by Wright (1954:51) and re-analyzed by Gilreath (Gilreath et al 2011: Appendix E). Two fibrous strings were determined to be yucca, one of the "problem" artifacts and one of the yucca strings identified by Wright (1954:51) were re-examined (Gilreath et al 2011: Appendix E). The second yucca string was identified by Gilreath as an s-twist yucca string, though the artifact was cataloged as "jerky" by MNA (Gilreath et al 2011:62). Additionally, Gilreath confirms the “skin” string discussed by Wright is in fact rabbit skin and she identifies the two strands of human hair initially recorded by Wright (Wright 1954:51; and Gilreath et al 2011:56-58, and Appendix E). A willow bark rope is also identified by Gilreath within the collection housed at MNA (Gilreath et al 2011: Appendix E).

As part of her re-analysis in 2011, Gilreath submitted samples of ten artifacts recovered from Catclaw Cave for radiocarbon dating at the National Oceanic Sciences Accelerator Mass Spectrometry Lab (NOSAMS) (Gilreath et al 2011: Appendix D). Of these ten artifacts, three pieces of string were tested, one z-twist of fur/cordage, one s-twist yucca cordage, and one s-twist cotton cordage (Gilreath et al 2011:44-45 and 62). The z-twist of rabbit fur (LAKE 40899) was determined to date to 393 calBP while the cotton s-string (LAKE 40940) was dated to 388 calBP and the s-twist yucca string (LAKE 40955) was dated to 303 calBP (Gilreath et al 2011:62). The radiocarbon dates obtained by Gilreath suggest that Catclaw Cave was predominately used in the last 650 years (Gilreath et al 2011:63).

During my visit to MNA in association with this project, all of the string materials recorded by Wright (1954:51) and identified by Gilreath (et al 2011: Appendix E) were found within the collection housed at MNA. All string materials were in good condition (see Figure 50). The human hair was not analyzed as consultation had not been conducted regarding this particular artifact. The human hair found at Catclaw Cave was utilized as string material, further suggesting no burials were identified during excavations at the Cave in 1949.

Figure 50: Willow Bark string recovered from Catclaw Cave (Swett).

Basketry

Wright identifies several pieces of basketry within the collection and notes that "with a single exception al basketry within the cave was fragmentary" (Wright 1954:51). One coiled basket was recovered from the cave, which Wright notes included coils "composed of grass and cane leaves in bundles… and stitched with wide strips of bark. The method and materials used in construction and bear a strong resemblance to those used by the Pima and Papago for storage baskets" (Wright 1954:51-52; Morris and Burgh 1940:10; and Wright et al 2008:78). Wright records the contents of the basket as a "basketry awl, a fragment of buck string, a twisted strip of willow bark (possibly a handle), and a single small sherd of Pyramid Gray" (Wright 1954:52). The condition of the basket reported by Wright was poor, he states, "the basket had rotted to such an extent that only small portions were preservable" (1954:52). Additional fragments of basketry are recorded from the site, "[o]f the remainder of basket fragments, four had a foundation of four split rods and an un-interlocking stitch. This may have originally been a two-rod foundation that split after it had been discarded. One of these fragments had been waterproofed with pitch. Three other fragments from a single basket showed a foundation of five split rods and an interlocking split stitch (Wright 1954:52).

During analysis of the Catclaw Cave assemblage in 2011, Gilreath identified nine basketry fragments from four different baskets within the collection at Catclaw Cave. All of the nine basketry fragments were recorded as coiled baskets and the waterproof basket was found within the collection at MNA (Gilreath et al 2011: Appendix E). Three fragments were picked for radiocarbon dating in 2011; a coiled basket (LAKE 40936) was dated to 528 cal BP, a coiled shoots basket (LAKE 40996) was dated to 522 cal BP, and finally a third coiled basketry fragment (LAKE 40951) dated to 425 cal BP (Gilreath et al 2011:62).

The basketry fragments were located during this project at the MNA facility, the collection remains in good condition and no signs of deterioration were noted (see Figure 51).

Sandals

Two sandal fragments were identified at Catclaw Cave, Wright identifies these as Figure-Eight sandals (1954:52). Within his thesis, Wright notes that "only the loops of yucca and willow bark fiber that had formed the sole of the sandal remained. The ties and framework which formerly held the sandal together were missing" (Wright 1954:52). Additionally, Wright notes that a similar type of sandal was identified at Etna Cave in Nevada (1954:52).

Gilreath identifies two sandals within the Catclaw Cave assemblage during her re-analysis of the assemblage housed at MNA collection, though only one is determined to be a Figure-8 style sandal (Gilreath et al 2011:55, Appendix E). A portion of the Figure-8 Sandal was radiocarbon dated as part of Gilreath's 2011 study, the sandal dated to 1012 calBP and indicated the site may have been used beyond the last 600 years (Gilreath et al 2011:62-63).

Both sandal fragments were found within the assemblage housed at MNA during this project and both artifacts are in good condition with no significant deterioration (see Figure 52).

Bark Bundles

Amongst the perishable items recovered from the site, Wright identifies two bark bundles that he identifies as “basket withes” at the site (1954:52). He states that “each consisted of a small section of a twig with a long strip of bark adhering to it and wrapped lengthwise about it. This was bound transversely with shredded willow bark: (Wright 1954:52-53). No additional discussion is made of the bark bundles.

Neither of the bark bundles were identified by Gilreath (et al 2011: Appendix E) during her analysis of the collection housed at MNA and there were no bark bundles listed on the MNA catalog in 2022.

Two bark bundles were identified within the botanical collection housed at Michigan, and were cursorily examined during this thesis project. The bark bundles appear to be in good condition and I agree with Wright’s initial analysis which states that the bark are wrapped with willow bark string (Wright 1954:52-53). The bark bundles were accessioned and cataloged by the author during this project.

Figure 52: Coiled basketry fragment recovered from Catclaw Cave (Swett).

Figure 51: Figure-8 Sandal recovered from Catclaw Cave (Swett).

Arrow Shaft

Wright identifies a “single broken shaft of cane” within the Catclaw Cave assemblage which he interprets as an arrow shaft (1954:53). The cane “was broken at one end with a foreshaft of hardwood inserted into the other. The cane had been split to receive the foreshaft and was then bound with sinew. The foreshaft had been cut a short distance from the end of the cane” (Wright 1954:53).

The possible arrow shaft was not located during Gilreath’s analysis of the Catclaw Cave assemblage in 2011 (Gilreath et al 2011: Appendix E).

During this project, I identified botanical specimens curated at the University of Michigan, which included the arrow shaft. The artifact was returned to the NPS LAKE and I accessioned and cataloged the artifact as part of this project. I agree with Wright’s analysis (1954:53) that this artifact is a cane arrow shaft. The artifact is reminiscent of arrow shafts recovered from archaeological sites in the southwest, including Chaco Canyon and Aztec House where arrow shafts have been recovered and studied in depth (Holly 2010:5-7). Based on the shape of the cane, I agree this artifact was probably a foreshaft (see Figure 53) (Wright 1954:53; Holly 2010:7).

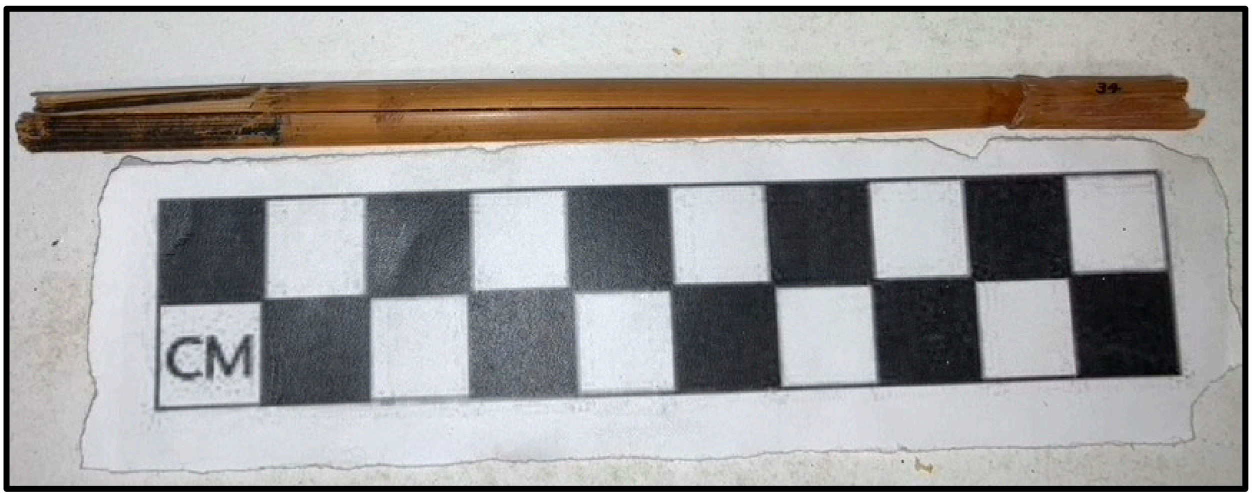

Figure 53: Arrow Shaft recovered from Catclaw Cave (Swett).

Hide

Three types of hide materials are recorded by Wright in his 1954, the first of which is a fringed belt which includes “a small fragment of tanned hide that had been cut in a fringe along one edge” (1954:53). Wright records specific attributes of the fringed belt including an element which “…had been inserted through a small bird bone and knotted. Faint traces of red ochre remained on the band near the fringed edge” (Wright 1954:53). A second type identified at the site was sewn skin, consisting of “two fragments of hide” which “showed evidence of sewing” (Wright 1954:53). An additional fragment included a “central wedge-shaped portion with the broad end scalloped and the narrow end torn… either side remnants of additional hide were sewn to the central section by whipping with yucca fiber, leaving a heavy seam” (Wright 1954:53).

Wright suggests this may have been part of a moccasin (Wright 1954:53-54). Additional hide fragments included “rabbit fur and skin twisted into string, a small strip of tanned hide inserted through a deer hoof, and additional hide strip bound to a piece of split bone with willow bark... small wads of rabbit fur and one of mountain sheep wool…” Wright 1954:54). Wright notes that sewn skin artifacts were frequently found throughout the Colorado River region, though he does not offer any additional insight into the hide portion of the assemblage (Wright 1954:55; and Wright et al 2008:80).

During analysis in 2011, Gilreath identified hide artifacts within the assemblage housed at MNA (Gilreath et al 2011). According to the updated site catalog, two sewn hide artifacts, two regular hide artifacts, and one striped buckskin artifact were identified (Gilreath et al 2011: Appendix E). Additionally, Gilreath identifies the rabbit skin string first recorded by Wright (1954:54) and picked this particular artifact for radiocarbon dating (Gilreath et al 2011:62). The artifact is dated to 393 calBP which further illustrates that Catclaw Cave was predominately utilized within the last 600 years (Gilreath et al 2011: 62-63).

In association with this project, I identified one rabbit skin string and five hide artifacts within the MNA assemblage, the artifact is in good condition and does not appear to show any signs of deterioration.

Miscellaneous Wood Fragments:

Wright identifies an unknown “quantity of twigs, yucca leaves, bark, cane, and gourd rinds” within the Catclaw Cave assemblage and suggests “these items showed various degrees of work by abrading, cutting, chewing, painting, or twisting together” (1954:54). Wright notes that a “single cane cigarette and other bits of can” were “similarly burned but unperforated” suggesting the can fragment “may have been part of an arrow shaft with a broad black band painted on it” (Wright 1954:54). Additionally, Wright notes that “two corncobs with small sticks thrust through the core lengthwise, two small twigs tied together at their centers, and a small wad of pitch wrapped in willow bark” were identified at the site (1954:54).

Gilreath did not identify any of the miscellaneous wood items within the Catclaw Cave assemblage housed at MNA in 2011 (Gilreath et al 2011; Appendix E). The artifacts were missing and were not located during the 2008 publication or the 2011 study (Gilreath et al 2011:50).

During this thesis project, all of the miscellaneous wood artifacts were found at Michigan, these artifacts were returned to the NPS LAKE where the author cataloged and accessioned them. The miscellaneous wood artifacts were typed by Vorsila L. Bohrer at the University of Michigan and are discussed in the botanical assemblage summary of this chapter.

Botanical

Although Wright collected a significant number of botanical specimens from Catclaw Cave, only thirty-one specimens were identified at MNA. The University of Michigan had not been able to locate any additional botanical specimens in 2008 and Harvard University had not been able to re-locate corn cobs from Catclaw Cave when asked in 2008 (Gilreath et al 2011:50).

Michigan Collection

As a result of this project, eighty-one botanical specimens were identified at the University of Michigan and transported to NPS LAKE in Boulder City, where they were accessioned and cataloged by the author as part of this thesis project (see Table C5). A large quantity of string-like material was discovered; likely made of yucca or cotton.

Vorsila L. Bohrer of Michigan analyzed the botanical specimens recovered from Catclaw Cave, though the analysis was not completed in time for the publication of Wright's thesis in 1954. The results of the botanical analysis were never reviewed, though the initial inventory compiled by Borher was included in the 2008 re-publication of the thesis (Wright 1954; Wright et al. 2008). Borher identified twenty-seven unknown cordage pieces, three agave strands, eight yucca strings, six willow twigs, a knotted agave leaf, a knotted yucca leaf, woody vine, stick, and five pieces of unidentified bark (Borher 1954). A majority of the recovered botanical assemblage is comprised of willow bark, agave, and yucca (Borher 1954). Initial hypothesis regarding the fibers analyzed discuss that while the fibers are "similar in outward appearance, [they have] been derived from at least three different plants sources and very possibly more” (Borher 1954 pp. 4). Of the eighty-one botanical specimens analyzed, only eleven pieces of bark were included and only one piece of bark contained red ochre pigment on the front of the specimen.

The one piece of bark with red pigment was selected for radiocarbon dating in association with this project, but Beta Analytics was unable to run radiocarbon dating tests on the specimen (see Figure 54) (Swett and Bitter Communications 2023).

Figure 54: A piece of bark with red ochre pigment on the front of the specimen, recovered from Catclaw Cave (Swett).

Corn Cobs (Harvard/Amerind Collection)

While a majority of the botanical specimens were found at the University of Michigan, at least 6 corn cobs (Zea mayes) were still unaccounted for within the collection as of 2021. Archival records housed at the Reclamation Lower Colorado Basin Regional Office were reviewed, revealing two letters between Wright and his advisor at the University of Arizona, Emil Haury, regarding the analysis of the Catclaw Cave corn cobs undertaken by Dr. Mangelsdorf. Following recovery in 1949, Barton had sent the corn cobs to Dr. Mangelsdorf at Harvard University. Two additional letters in the archives between Wright and Mangelsdorf revealed the corn cops had been assigned "catalog" numbers for Mangelsdorf's collection. These numbers were164, 171 222, 223, 224, and 225. An initial physical analysis was completed by Magelsdorf by 1954, in which the corn cobs were compared to those recovered from Montezuma's Castle in Arizona.

Mangelsdorf analyzed the Catclaw Cave corn cobs, though his analysis was completed after the completion of Wright's thesis in 1954. According to Mangelsdorf's statement, "the cobs… can all be matched in the collection… from Montezuma Castle National Monument, the age of his cobs is estimated at about 1200 AD. The great majority of cobs are tripsacoid indicating contamination with teosinte, but some of them represent almost pure maize… the teosinte contamination has caused a very marked stiffening of glunes..." (Wright et al. 2008).

According to the letters between Wright and Haury, the corn cobs were never returned to Barton, the NPS LAKE, Reclamation, or the MNA. In 2008, when the

Arizona Archaeological and Historical Society published Barton's 1949 thesis, archaeologists with the NPS LAKE and Reclamation attempted to relocate the corn cobs, but Harvard was unable to find them.

At the start of this project I again contacted Harvard regarding the corn cobs, specifically the Botanical museum and the Peabody Museum. Harvard staff had identified a box of 6 corn cobs back in 2018 while cleaning out Mangelsdorf's offices. These 6 corn cobs included the initial "catalog" numbers given to the Catclaw Cave corn cobs by Mangelsdorf back in 1949. While the box contained no exact provenience information suggesting these corn cobs were from a specific archaeological site, a note regarding the Amerind and Mohave County, Arizona, where Wright had found employment following his work at Catclaw Cave, was found inside the box. Harvard staff promptly sent the corn cobs to the Amerind in 2018 (see Figure 55).

The Amerind only had Mangelsdorf's "catalog" numbers and with no additional insight into which site in Mojave County the corn cobs had been recovered from, the Amerind stored the collection in the hopes more information could be found. When I contacted the Amerind, after receiving a photograph of the corn cobs from Harvard with Manglesdorf's "catalog" numbers, I provided copies of Mangelsdorf's analysis report of the corn, the catalog numbers, and the photograph. The Amerind confirmed they indeed had these corn cobs, and by June of 2022 they were sent to the NPS LAKE. As part of this project, I cataloged and accessioned the corn cobs at the NPS LAKE Repository, the collection will be curated at NPS LAKE indefinitely (see Table 22).

Figure 55: Corn Cobs recovered from Catclaw Cave and housed in Dr. Mangelsdorf's collection (Harvard 2018).

Table 22: Corn Cobs Recovered from Catclaw Cave and Identified During this Project.

Catalog Number	Mangelsdorf's Number	Glumes	Notes
LAKE 33545	164	Stiff	Tripsacoid
LAKE 33546	171 (A and B)	Bony (A) Stiff (B)	Highly Tripascoid (A) and Tripascoid (B)
LAKE 33547	222	Stiff	Tripsacoid
LAKE 33548	223	Stiff	Tripsacoid
LAKE 33549	224	Soft	Almost Pure Maize
LAKE 33550	225	Stiff	Highly Tripascoid

In March of 2023, consultation with Indigenous Tribes and Descendant Communities was completed by the NPS LAKE in accordance with Section 110 of the National Historic Preservation Act of 1966 in relation to radiocarbon dating of two corn cobs (see Attachment 5). LAKE 33545 and LAKE 33550 were selected for radiocarbon dating, LAKE 33545 represented a Tripsacoid style corn cob, which made up the majority of the corn cobs Mangelsdorf identified. LAKE 33550 represented one of two Highly Tripsacoid corn cobs within the collection.

LAKE 33545 was dated between 770 and 888 A.D. (or 1220 +/- 30 BP), roughly 400 years earlier than the initial date believed by Manglesdorf who had originally suggested this characteristic of corn cob to more specifically date to 1200 A.D. due to the physical similarities of the cob to Montezuma Castle in Arizona. LAKE 33550 dated between 1277 and 1322 AD (or 670 +/- 30BP), firmly placing use of the site within the last 600 years, as confirmed with additional radiocarbon dating completed in 2011 on various organic specimens (Gilreath et al 2011).

Human Remains

While “there was no evidence to suggest there were ever any human burials in Catclaw Cave” (Wright et al 2008:83). Wright identified two possible human remains in his 1949 field notes. Additional analysis in 2008 confirmed that the tooth recovered from Catclaw Cave belonged to a hoofed animal, not a human. The possible human mandible fragment discussed in his field notes was lost between 1949 and 2008, though Wright’s notes stated that the mandible and tooth were found together in the “general fill of Level 1” (Wright 1949b; Wright et al. 2008). Gilreath et al. (2011) analyzed the tooth and determined it to be faunal. Both Wright et al. (2008) and Gilreath et al. (2011) determined the human hair found at the site to be a string artifact.

Wright’s initial analysis of the possible human remains recovered from Catclaw Cave are not expanded upon in his thesis (1954) nor in the published version of his thesis (et al 2008). Following Gilreath’s additional analysis of the tooth and hair still curated at the MNA, Gilreath identified the tooth as faunal not human, and recorded use of the hair consistent with string (Gilreath et al 2011). Unfortunately, the potential human mandible was never recovered. As the mandible and tooth were recovered together, it seems likely this mandible was actually faunal. The human hair recovered from Catclaw Cave was located within the collection housed at MNA. The human hair was not analyzed during this project and is noted in the updated catalog.

The treatment of human remains within collections is a significant issue. Under Section 5 of the Native American Graves Protection and Repatriation Act of 1990

(NAGPRA), Federal Agencies and museums are required to repatriate human remains (43 CFR Part 10). Unfortunately, the lack of funding and support for Tribal Governments, descendant communities, museums, and Federal Agencies has led to significant delays in repatriation under NAGPRA. At the beginning of this project, under the previous NAGPRA regulations, the human hair recovered from Catclaw Cave was considered to have been given freely and was therefore not immediately marked for repatriation unless requested by Tribal representatives or direct lineal descendants.

Human remains are defined in the NAGPRA regulations as “any physical part of the body of a Native American Individual, including, (1) human remains reasonably believed to be comingled with other materials; (2) human remains incorporated into funerary object, sacred, or object of cultural patrimony are considered part of the cultural items rather than human remains; and (3) human remains incorporated into an object or item that is not a funerary object, sacred object, or object of cultural patrimony are considered human remains” (43 CFR 10.2 “Human remains). Following the updated regulations, the human hair recovered from Catclaw Cave should be repatriated by the federal agency under Section 5 of NAGPRA.

Chapter 5: Discussion and Conclusions

<u>Question 1: What did Indigenous People use Catclaw Cave for?</u>

The physical re-analysis of the artifacts recovered from Catclaw Cave identified potential uses of Catclaw Cave and ultimately confirmed some of Wright's initial ideas regarding use and habitation of the Lower Colorado Basin. Wright does not interpret use of the site in his thesis (Wright 1954) but does mention possible uses of the site in his preliminary survey notes (Wright 1948). The features recorded by Wright may also identify activities at the site.

During initial excavation in 1949, Wright identified a possible lodge area, measuring "85 cm by 100 cm with the longer side oriented parallel to the bench at the rear of the cave and partially cut into it. There are postholes at each corner and all are extremely shallow with an average depth of 10cm and a diameter of 8cm" (Wright et al 2008 pg54). Two depressions within the southwest and southeast potholes were excavated, fish remains and willow bark string were found in the southeast depression. Towards the northeast pothole, portions of a mud plaster floor were identified along with a partially burned yucca pod, a [Topoc Buff] ceramic sherd, and a scraper flake (see Figure 56) (Wright et al 2008). Wright states in his thesis that the possible lodge area is of an "undetermined use" but later discusses the possibility of the site as a semi-ceremonial menstrual lodge (Wright 1954; Wright et al 2008).

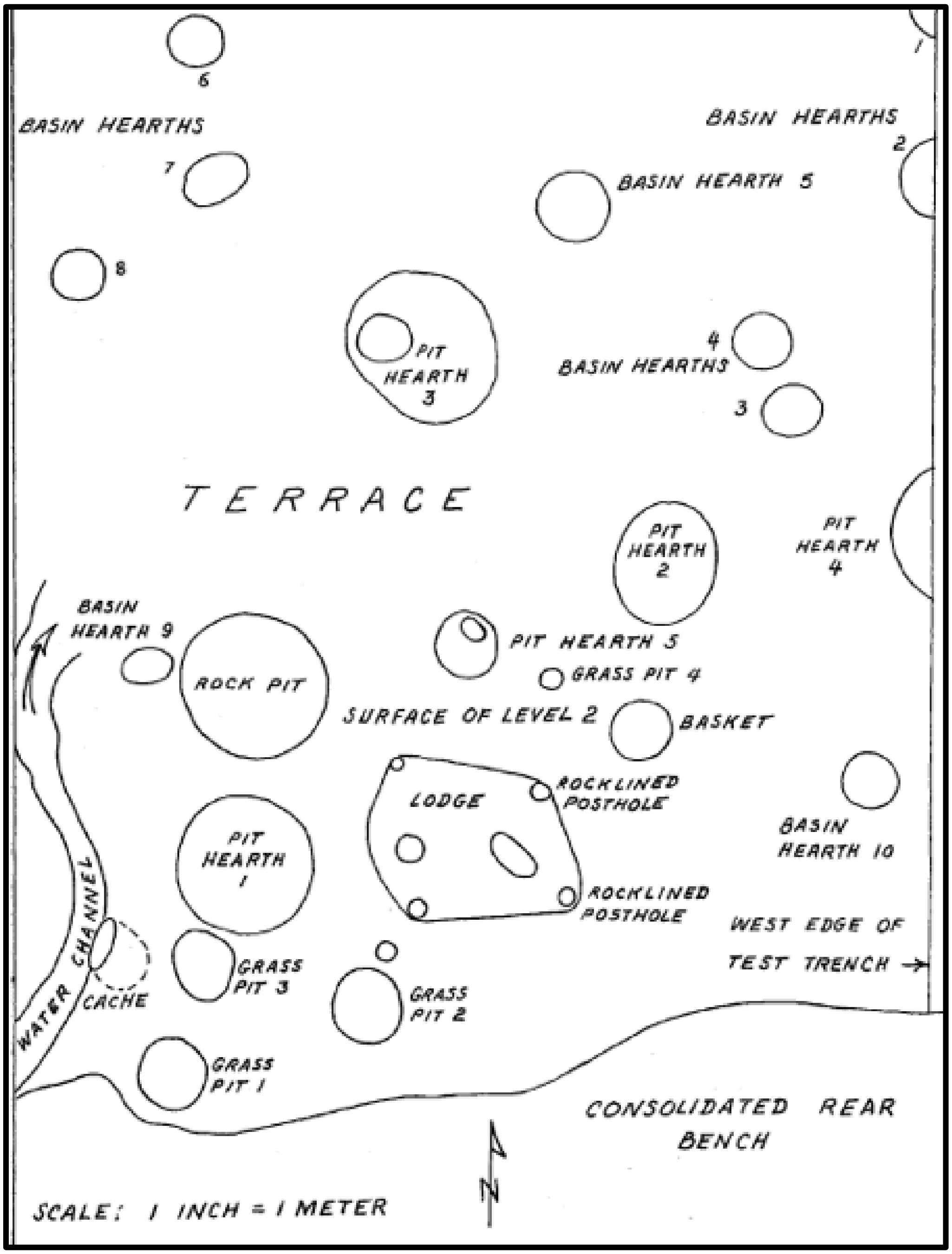

Figure 56: Sketch map of the features identified during the 1949 excavation at Catclaw Cave, including the potential menstrual house (Wright 1954:21, Figure 7).

Little archaeological evidence regarding menstrual lodges has been identified or published in the Southwest, much of the literature focuses on menstrual lodges in coastal California, the Plains, and the Columbia Plateau in the Northwestern United States. While this indicates that there is a significant lack of research regarding cultural activities surrounding menstruation, ethnographic accounts suggest that neither the Mohave nor Hualapai had specific structures utilized during menstruation; though most early ethnographers, anthropologists, and archaeologists did not focus on activities predominately labeled as “female” and the sacred menstruation rituals may not have been shared (Claassen and Joyce 1997; and Nelson 2007).

In fact, much of the anthropological research completed by early archaeologists utilizes colonial theory and perception of menstruation and the cultural activities surrounding menstruation (Risling 2018). Continued use of the term *menstrual huts* exemplifies how colonial terminology has exoticized Indigenous culture in the United States (Risling 2018). Instead of using this antiquated term, archaeologists and anthropologists should utilize the term *menstrual houses* when referring to structures associated with cultural activities surrounding menstruation (Risling 2018). It is also important to note that every Indigenous community may refer to menstrual houses in different terms, consulting and collaborating with Indigenous peoples regarding cultural customs including but not limited to menstruation can help correct the colonial and often sexist terminology invoked when discussing cultural customs especially relating to women.

Archaeological and ethnographic research into menstrual houses utilized by the Chingichngish people, living along the coast of Southern California near the Cahuilla, suggests that there were cultural customs associated with puberty and utilized by various Indigenous communities within the region and further identifies a significant need for inclusive archaeological research focusing on structural use and ceremonial activities of Male, Female, and Non-Binary individuals (Blackburn 1962-1963; 1925 1968; and Heizer et al 1978). Structures associated with the Mohave included winter homes which were comprised of “large cottonwood posts” supporting a “low sloped roof thatched with arrowed” (Kroeber 1925; and Ortiz et al 1983). The sides of these structures included narrow vertical poles and the structure was covered with soils to insulate the house during colder weather (Kroeber 1925; Ortiz et al 1983).

The structure identified in Wright’s (1954) thesis does not appear to have been a menstrual house. While there were five pit hearths identified during the 1949 excavation (Wright 1954), all but one hearth appears to have been used infrequently and the lack of groundstone suggests the site was used seasonally. The size of the lodge and its placement inside Catclaw Cave, suggests it was utilized during fish processing. Hang-drying fish is a common practice throughout the Americas as well as Egypt (Perez 2019; Zohar and Cooke 2019). Indigenous peoples in Panama utilize structures to hang-dry fish in windy or sunny conditions (Zohar and Cooke 2019). Similar practices amongst the Bedouin communities of Sinai in Egypt are recorded, including the practice of hanging fish from the roof of a lodge to dry (Zohar and Cooke 2019).

Based upon the recovered assemblage, fish were a significant part peoples diet while using the cave. The 375 fish remains recovered from Catclaw Cave represent a significant majority of the 402 faunal remains recovered. While the fish remains have been lost to time, initial analysis completed by Miller in 1955 resulted in the identification of three native species, the Razorback Sucker, the Humpback Chub, and the Colorado Pikeminnow. While the environment of the cave was ideal for fishing, the cave itself had a buildup of sedimentary which gave it an elevated terrace in the back of the cave. This would have been ideal for drying fish while providing an open talus for processing activities such as de-fleshing the fish specimens.

Little archaeological evidence in the Lower Colorado River Region has been uncovered regarding fish processing sites. Ethnographic accounts and archaeological excavations in southern California have identified several methods of fishing utilized by the Mohave and Cahuilla peoples (Stone 1991; Deur and Confer 2011; White 2007; and White and Roth 2009). Archaeological research within the Salton Basin identified preserved fish traps which were utilized by Cahuilla peoples during use of Lake Cahuilla until it dried up in the late 1700s (White and Roth 2009). Mohave fishing methods, as recorded in ethnographic accounts, primarily utilized string to create nets and traps (weirs) and predominately fished in protected areas protecting fisherman from the strong currents of the Colorado River (Stone 1991).

The botanical specimens recovered from Catclaw Cave include a significant amount of fibrous material, much of which is wound into string. Mohave fishing methods and ethnographic accounts of traditional use of the area by both the Mohave and

Hualapai peoples suggest that fishing occurred at the site utilizing nets compiled from string. Little evidence of traps or weirs has been identified within the recovered artifact assemblage, though the environment was likely to harsh to preserve such delicate artifacts. The fish traps preserved from the Cahuilla were not exposed to submersion and were protected within an extremely dry and heavily salted landscape, perfect for preservation of weirs (see Figure 57).

The V-style fish trap, most commonly found along the Lake Cahuilla shoreline, is frequently identified within ethnographic accounts regarding Mohave fishing methods (White and Roth 2009). These fishing nets were predominately utilized to capture Razorback Sucker fish and were comprised of nets deployed in shallow waters within lagoons created by the Colorado River (White and Roth 2009; Rupert 1976; and Wallace 1955). The number of string specimens recovered from Catclaw Cave suggest the site was utilized for fishing and fish processing, while no evidence of fish traps was identified, use of nets within the natural lazy susan west of the entrance to the cave is highly probable and supported by ethnographic accounts of fishing methods utilized by Patayan peoples of the Colorado River Valley, including the Mohave and Hualapai.

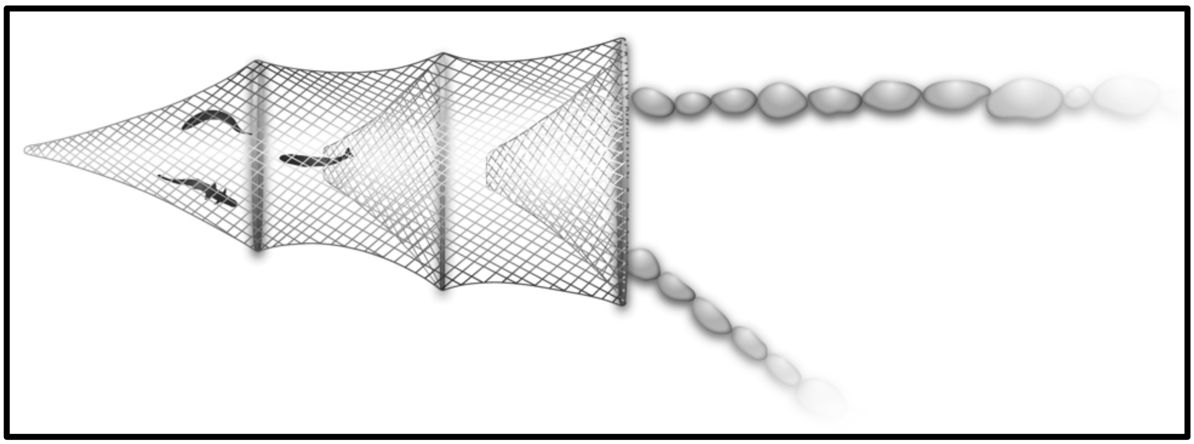

Figure 57: Fish Traps recovered from Lake Cahuilla in southern California (White and Roth 2009). No evidence for V-style fish traps were found at Catclaw Cave.

The limited number of lithic materials recovered from the site and the quality of the lithic assemblage shows that Catclaw Cave had a very different use than other sites excavated and studied in southern Nevada and Northwestern Arizona. For one, it suggests that there was another location for lithic processing in the area. The inundation of Lake Mojave destroyed thousands of archaeological sites which had not been studied to the degree Catclaw Cave and Willow Beach were. Additional surveys of areas exposed during drought conditions along Lake Mojave may yield lithic materials indicative of the possibility of a subsurface lithic procurement site. The lithic materials recovered from Catclaw Cave further suggest the site was used for fish processing as a majority of the recovered materials were knives, blades, scrapers, bifaces, and hammerstones. Only nine projectile points were recovered from the site, indicating that projectiles were not a major tool used at the site. Additional ethnographic research complied by Stone in 1991 further identifies fish as a significant food source along the Lower Colorado River, often times preferred over large game (Stone 1991). Knives and hammerstones would have been sufficient tools for repairing nets and processing fish.

A majority of the ceramics recovered were not decorative wares and showed signs of cooking on recovered sherds. The ceramics recovered from the site were predominately Topoc Buff, a Payatan ceramic ware which was constructed utilizing local resources and materials such as river sediments. A majority of the recovered ceramic sherds did not show signs of exposure to heat such as the smoke discoloration frequently found on cooking pots. The ceramic assemblage suggests jars and pots were utilized for storage and played a key role in the storing ingredients such as salt for use during fish processing activities as well as food such as corn for consumption. Ultimately, the archaeological evidence suggests that Catclaw Cave was predominately used as a seasonal fish processing site.

Question 2: How does the Catclaw Cave assemblage compare to other artifact assemblages from the Lower Colorado River Valley?

When Wright excavated Catclaw Cave in 1949, only two other archaeological sites had been excavated in the Lower Colorado River Valley, the Lost City Archaeological Complex and Willow Beach both north of Catclaw Cave. Wright heavily relies on comparisons between the Willow Beach assemblage and the artifacts recovered from Catclaw Cave in order to construct his theories regarding use and habitation at the site (Wright 1954; Wright et al 2008). The recovered lithic assemblage from Catclaw Cave is vastly different from the assemblage recovered from Willow Beach. There are a significant number of large groundstones and intact lithic materials within the Willow Beach assemblage, that are virtually non-existent within the Catclaw Cave assemblage. Most of the lithic assemblage recovered from the cave are comprised of knives, bifaces, and hammerstones all of which are made from local sources such as agate and chalcedony. In comparison to archaeological sites in southern Nevada, the lithic assemblage from Catclaw Cave does not include any fire-cracked rock, an artifact frequently observed at the Stumps Spring site in the Pahrump Valley. Stump Springs has been determined to be a lithic processing site, nestled between the Great Basin and Mojave deserts, Stump Springs was frequently used prior to and following contact.

Of the lithic materials recovered from Willow Beach, Schroeder reports several projectile points, cores, metates, manos, hammerstones, knives, and drills (see Figure 58). The assemblage includes minimal scrapers, which Schroeder notes as unusual (Schroeder 1961). The excavation report identifies 11 projectile reports from the site, an unidentifiable number of side-notched points, stemmed dart or spear points, diagonal-notched points (similar to those recovered from the Lost City Archaeological Complex), base-notched points, and side-notched points with tangs. A majority of the assemblage is comprised of finished flakes which are labeled as pressure flakes. Of the 30 scrapers recovered, 25 are recovered as unifacial flakes and 5 are identified as bifacially flakes tools. Only 2 chopper tools were identified at the site, both of which are recorded as unifacial tools (Schroeder 1961).

The manos and metates recovered at Willow Beach were more intact and identified in several excavation layers. Schroeder identifies Willow Beach as a trading center and seasonal camping site utilized during trade routes between the Southwest and the Great Basin (Schroeder 1961). The recovered manos and metates from Willow Beach were similar to the manos and metates recovered from the Lost City Archaeological Complex by Harrington in the 1920s. The Willow Beach site is the only other excavated site in the region and the only trade fair site identified in the area. Schroder suggests that the trade at the site was disrupted by the migration of Shoshonian groups into southern Nevada leading the Patayan peoples to move south into the Parker Needles area (Schroeder 1961).

FLAKING	Percussion					Pressure				
LAYER	O	J	F-G	C	B	O	J	F-G	C	B
ARTIFACT										
Core tools										
Scraper	1-U		1-U							
Chopper (spall)			1-U	1-U						
Pick			1-B							
Flake tools										
Scraper, rough			3-B	2-B						
Blank	1-B	1-B								
Knife	17-B		2-B	2-B	6-B	9-B	3-B	5-B		
Scraper, flake						9-U		5-U	2-U	3-U
Scraper, spall						3-U	1-U			
Drill						4-B				2-B
Point						11-B		3-B	8-B	11-B
Reamer										1-B

KEY
U - unifacial flaking
B - bifacial flaking

Figure 58: Lithic materials recovered from Willow Beach (Schroeder 1961).

Lithic artifacts recovered from Willow Beach are representative of the various archaeological sites located in the Lower Colorado River corridor, but because of the use of the site as a trade fair, it contains a greater number of lithic remains than what was recovered from Catclaw Cave (see Figure 59). The greater number of intact and fragmented large groundstones further suggests that Willow Beach was utilized as a seasonal campsite and suggests additional activities such as lithic processing and trade between various cultural communities including the Virgin Puebloan, Payatan groups, southern Californian communities, and groups from the Great Basin. In comparison, the Catclaw Cave lithic assemblage portrays a site used specifically for fishing and fish processing with some possibility of trade between Catclaw and Willow Beach, but little evidence that the sites were utilized in conjunction.

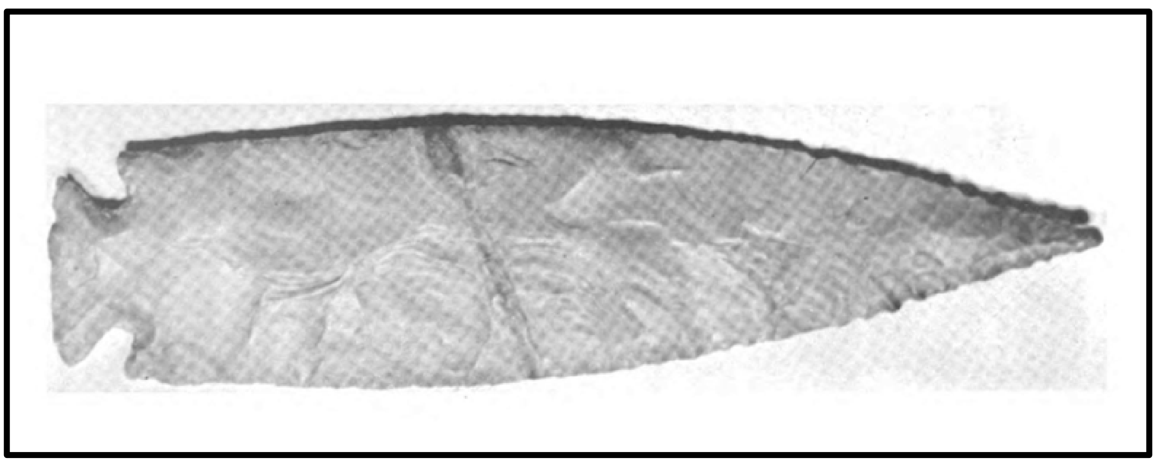

Figure 59: An Amargosa projectile point recovered from Willow Beach in 1936 by Mark Raymond Harrington (Schroeder 1961).

The Ceramic Assemblage recovered from Catclaw Cave is predominately comprised of Topoc Buff, a Patayan ceramic typeware which was also found at Willow Beach. Ceramics recovered from Catclaw Cave included Boulder Grayware, Johnson Gray/North Creek Gray and Deadman gray ceramics, which are similar to sherds recovered from the Lost City Archaeological Complex. Additional ceramic sherds recovered from the site included Cerbat Brownware, Aquarius Brownware, and Sandy Brownware which are part of the Yavapai Tizon Brownware type. Prescott Grayware and Tizon Brown Ware were also recovered at the site as well as Paiute Brownware sherds, Parker Buffware, and Parker Stucco wares. Ultimately, 80% of the ceramic assemblage was comprised of Topoc Buff. None of the recovered Topoc Buff sherds recovered from Catclaw Cave had any scumming on the outer portion of the sherds, unlike the assemblage recovered from Willow Beach.

The ceramic assemblage recovered from Willow Beach was also comprised of a majority of Topoc Buff sherds, though there are a significantly greater number of Boulder Grayware sherds recovered from Willow Beach than Catclaw Cave (see Figure 60) (Schroder 1961). The recovery of Pyramid Grey sherds at Willow Beach led Schroeder to conduct experiments using nearby resources in an attempt to recreate the same ceramic color (Schroeder 1950).

Occurrence of pottery in Trench V by layers

LAYER / POTTERY TYPE	Paiute Ware	North Creek Gray	Lino Black-on-gray	Lino Gray	Boulder Gray	"Utah" Gray Ware ?	Logandale Gray Ware ?	Aquarius Brown	Aquarius Orange	Aquarius Black-on-gray	Aquarius Gray	Verde Gray	Sandy Brown	Cerbat Brown	Pyramid Gray	TOTAL
# of sherds (A)														3	9	12
%														25	75	
# of sherds (A-B)	2	1			2		1		1	1	1	1	3	3	194	210
%	1	..5			1		.5		.5	.5	.5	.5	1.5	1.5	92	
# of sherds (B)	6	1	1	3	16	2	16	9	3	5	3	6	16	45	851	983
%	.6	.1	.1	.3	1.6	.2	1.6	.9	.3	.5	.3	.6	1.6	4.5	86.6	
# of sherds (B-C)					3									6	9	18
%					16									34	50	
# of sherds (C)			3		12	6	6					1		6	1	35
%			9		33	16	16					5		16	5	
TOTALS	8	2	4	3	33	8	23	9	4	6	4	8	19	63	1064	1258

Figure 60: Ceramic sherds recovered from Willow Beach in 1950 (Schroeder 1961).

Schroeder's re-firing experiments consisted of various tests, including the addition of sugar to the clay to reproduce the gray color of the original sherd (Seymour 1997). The organic materials used by prehistoric potters, according to Schroeder, were similar to modern-day sugar (Seymour 1997). Another prominent archaeologist, Anna Shepard, regarded Schroeder's interpretation to be close-minded – suggesting that because the colors were similar between the experimental sherds and the original that there had only been a correlation between the sherds rather than an absolute answer as to the location of the pottery manufacturing (Seymour 1997). The ceramic assemblage recovered from Willow Beach led Schroeder to devise his own ceramic typology for the region based upon the chronology developed by Malcom Rogers prior to World War II (Seymour 1997). Rogers was unable to gain traction with his ceramic typology, due to Schroeder's network, which did not just propel Schroeder's work forward through publication but also disregarded Rogers' work as inaccurate (Seymour 1997).

Rogers had proposed that ceramic production and technology had begun in the Southernmost part of the Southwest near Yuma, Arizona (Seymour 1997; Waters 1982). Schroeder vehemently opposed this chronology and suggested that ceramic production and technology had been developed in Southern Nevada, most likely at Lost City by the Virgin Puebloan (Seymour 1997; Schroeder 1950). It is important to note however that Schroeder was not the first archaeologist to discover and discuss Rogers' typology, Harold Colton used the typology, even naming the ware Pyramid Grey during his work on Payatan culture in the Colorado River Valley (Seymour 1997; Colton 1945). Waters travelled to the Museum of Man to study Rogers' typological collection after he had reconstructed his typological model using sample sherds and detailed notebooks. From this information, Waters synthesized the typology narrowing down the seventeen-ware chronology to a simple nine and included potential variants. One of the wares cut from the original typology included Pyramid Grey, which was roped into another major component of what Waters dubbed the "Lower Colorado Buff Ware" (Seymour and Perry 2005; Seymour 1997).

As one of the most controversial wares in the Lower Colorado River ceramic typology, the Pyramid Grey ware was named by Colton in 1945, adopted and used by Schroeder in his publications regarding Willow Beach, and Wright in his analysis on Catclaw Cave. Ceramic sherds recovered at both Willow Beach and Catcalw Cave revealed both sites' use by various groups of people over time, suggesting that the most consistent use of Catclaw Cave may have occurred during the Payatan II period (Wright 1954). Schroeder pronounced willow Beach to be the oldest archaeological site along the river. Recent studies have still thrown Schroeder's determination of the Willow Beach Phase and habitation dates at Catclaw Cave into question.

While re-organizing Rogers' typological work, Waters decided to re-classify Pyramid Grey as part of the Topoc Buff Ware, suggesting that Pyramid Grey was simply a cultural variation. (Seymour, 1997; Waters, 1982). Schroeder described pyramid Grey as having a scum slip, giving the ceramic sherd a grey, almost effervescent appearance. Though he later identifies the ware as “not a true scummed surface” suggesting that an organic substance had been applied to the ceramics (Schroeder 1961). Its angular temper is comprised of rounded quartz rocks, a common material throughout the Lower Colorado River Valley. There was no recorded decoration on any of the sherds recovered during the course of excavations under Schroeder or Harrington. Schroeder believed the Pyramid Grey ware to have been indigenous to Willow Beach, created using clay from nearby sources and distributed outwards towards Southern California and Southern Arizona (Schroeder 1961).

Schroeder conducted many experiments using locally sourced clay from the Willow Beach area and recovered ceramic sherds (Schroeder 1961). He re-fired original sherds with his newly constructed sherds in an attempt to obtain the red oxidized clay coloring and used sugar to substitute for the organic material that he supposed was used by indigenous peoples to create the grey colored scum slip (Seymour 1997; Schroeder 1961). His results were not conclusive in suggesting the ware's origin, but his efforts to manipulate the data were noticed by several of his colleagues, including Anna Shepard. Shepard warned Schroeder that reporting the wares as having originated without a doubt at Willow Beach would be misleading and a complete misinterpretation of the experimental archaeology conducted on the recovered sherds (Seymour 1997). A foundational ceramicist in Southwestern Archaeology, Shepard outlined the dangers of absolute archaeology (Seymour 1997).

While Pyramid Grey faced significant challenges in its typological history, the Cerbat Brownware discovered at the Catclaw Cave and Willow Beach excavations had a much easier administrative history. Believed to have originated in the Cerbat branch of the Payatan culture in Western Arizona, the Cerbat Brownware signified habitation and use of the Lower Colorado River Valley sites (Seymour 1997). Wright believed that the Pyramid Grey Ware creators were visited and traded with members of the Cerbat ceramic culture in the east. He thought these peoples would trade either at Catclaw Cave or nearby, perhaps at Willow Beach, which is a short boat journey from the cave site (Wright 1954).

Schroeder conducted experiments on the Cerbat Brownware sherds recovered at Willow Beach, noting the clay used to create the Cerbat Brownware ceramic resulted in a red-orange coloring when fired in an oxidizing atmosphere often turning a light brown, unlike the orange coloring resulting in oxidization of the clay material recovered at Willow beach. The Cerbat Brownware most likely contained organic materials as carbon cores and occasional streaks were noticeable on the recovered sherds (Schroeder 1961). Colton referred to the slip on Cerbat Brownware sherds as scum, similar to the slip noted on the Pyramid Grey Sherds by Schroeder (Schroeder 1961). Created using a paddle and anvil method, the Cerbat Brownware also had a standard rim culturally identifiable to Western Arizona (Seymour 1997).

Seymour suggested that Cerbat Brownware was part of the Lower Colorado River Buff Ware and represented significant cultural affiliation between the newly settled Payatan in the Lower Colorado River Valley and indigenous communities in Western Arizona rather than the Hohokam in Southern Arizona (Seymour 1997). Seymour further suggests that this adoption or change in ceramic manufacturing may have been an attempt by members of the Payatan community to "adapt to the local geology" (Seymour 1997 Pg. 128). The Cerbat Brownware was manufactured around 650 A.D.

following either the migration of the Payatan people west or the expansion of Payatan trade to the west (Seymour 1997). The Tizon Brownware served as the inspiration for the Cerbat Brownware. However, the limestone temper of the Tizon Brownware was not as readily available in the Lower Colorado River Valley, and a new temper was developed to manufacture the ceramic (Seymour 1997).

Cerbat Brownware ceramics did not have any decoration visible on any of the recovered sherds at either Catclaw Cave or Willow Beach (Wright 1954; Schroeder 1961). The identification of the Cerbat Brownware sherds represented continued use of these sites by various groups as environments changed and migration occurred. It is possible that the Payatan people traded with the Mohave at Willow Beach, resulting in an increase in Cerbat Brownware sherds at Catclaw Cave. Mohave elders recounted several stories of their use of Catclaw Cave, a sacred place used primarily by fishermen. The elders recalled their ancestors had given the Chemehuevi special permission to use Catclaw Cave during the historic period, the Chemehuevi and the Mohave were once allied against the Euro-American settlers and explorers of the region. When the Chemehuevi were stripped of their homeland, they were allowed to live on the Mohave reservation (Wright 1954).

The ceramic assemblage recovered from Catclaw Cave includes Topoc Buffware, previously identified as Pyramid Gray. A majority of the ceramic sherds are unpainted and undecorated suggesting they were predominately used for utilitarian purposes. The ceramic assemblage recovered from Catclaw Cave is extremely similar to the ceramic assemblage recovered from Willow Beach and suggests the sites were utilized during the same time-periods and trade occurred between these sites.

Within the expansive ceramic assemblage, seven ceramic figurines were identified during the 1949 excavations. Upon review of the figurine assemblage recovered from Catclaw Cave in association with this project, the author confirmed the identification of two female figurines, three wedge-like figurines, one figurine limb, and an avian figurine. Based upon analysis of the figurine assemblage, the figurines predominately fit within the northern tradition as suggested by Gilreath (et al 2011:62) but are not representative of the Fremont styled figurines such as the Pilling Figurines (Pitbaldo et al 2013). Northern tradition figurines are "generally cylindrical, occasionally modeled breasts" (Koerper and Hedges 1996:211).

Based on review of the figurines recovered from Catclaw Cave during this project, the author agrees with Gilreath (et al 2011:62), that the figurines are most similar in shape to figurines identified at House 47, House 112. The author also finds similarities between the Catclaw Cave figurine assemblage and the figurines identified at Chuckwalla Cave within the Lost City complex by Tuohy (2000:142). The figurines recovered from Catclaw Cave do not fit within the Southern Tradition as defined by Scott (1960), and are not similar to Hohokam figurines recovered from central Arizona. The hallmark coffee bean eyes and prominent noses often noted within Hohokam figurine collections (Koerper and Hedges 1996:211) are not represented by any of the figurines recovered from Catclaw Cave. The figurines recovered from Catclaw Cave do not share similarities with the Patayan anthropomorphic figurines recovered from site

CA-ORA-58 in Orange County, California (Koerper and Hedges 1996: 207, Figure 3). I suggest the figurines recovered from Catclaw Cave represent a figurine style specific to the Lowland Patayan culture.

While figurines remain difficult to interpret, Tuohy suggests that broken figurines predominately characterized as female suggest rituals associated with childbirth and puberty were common throughout the Lost City complex (Tuohy 2000:139). In fact, within the southwestern figurine tradition, Morss suggests figurines were used in association with "witchery" meant to control population size either increasing or decreasing the number of children born into the society (Morss 1954: 53-63; Tuohy 2000:139). Tuohy suggests the figurines may represent the desire for infants within Great Basin communities (Tuohy 2000:139).

All figurines recovered from Catclaw Cave during the 1949 excavation were fragmentary, the only complete figurine was identified in a medicine bag and taken by looters in 1940. The interpretation of ceramic figurines and effigies outlined in Tuohy's work on the Lost City assemblages (2000:139) would fit with the ceramic assemblage recovered from Catclaw Cave. The discovery of a complete figurine within a medicine bag suggests figurines were associated with medicinal practices. The discovery of ceramic figurines within a medicine bag (Wright 1948; 1949; 1954) further suggests a connection between figurines and medicinal practices prior to contact.

The botanical assemblage recovered from Catclaw Cave contained a significant number of yucca and cotton material woven into string like material. While some seeds were recovered from the site, little evidence of cultivation was identified and the assemblage suggests string production was a major undertaking at the site. The string material was most likely used during fishing and fish processing activities at the site. A piece of burnt painted bark was recovered, though the artifact is unidentifiable in terms of its potential use or function. It may have been part of a figurine, throughout the southwest, stick figurines were frequently produced and the number of ceramic figurines recovered from the site suggest the burnt bark may have been a figurine (Schwartz et al 1958). All of the recovered botanical specimens were comprised of native plants such as willow bark, yucca, and cotton. Several corn cobs were recovered from the site, seven, which represent additional insight into the cultivation of corn throughout the Colorado River Valley. There is no evidence to suggest corn was grown at Catclaw Cave. The limited number of recovered corn cobs suggests they were brought to the site for consumption during fish processing activities. Mangelsdorf's original analysis suggests that the corn cobs recovered have similar physical characteristics to those recovered from sites in central Arizona such as Montezuma's Castle (Wright et al 2008). Schroeder's excavations at Willow Beach yielded corn cobs and the possibility of cultivation in the area (Schroeder 1961:8). It is highly probable that corn cobs were brought from Willow Beach to Catclaw Cave following trade interactions at Willow Beach.

Schroder sent the botanical materials recovered from Willow Beach to the University of Michigan where Volney Jones and reviewed the material. Three specimens were identifies as burnt food and were originally excavated by Mark Raymond Harrington in 1936 (Jones n.d.; Schroeder 1961). These specimens were identified as pine resin which is frequently found amongst materials used for basket splints. Pieces of carbonized cotton textile, including Gossypium hopi (cotton) woven into yarn twisted in a z-twist direction or counter-clockwise (Jones n.d.; Schroeder 1961).

Basketry fragments recovered from Willow Beach are considered typical of Puebloan plain-weave textiles, though it seems highly possible that additional fragments were reminiscent of Patayan textile design, and the fragments found at Willow Beach are representative of additional fragments recovered from sites throughout the Great Basin and Eastern Utah (Jones n.d.; Schroeder 1961). Yucca identified at the site as well as basket splints were recovered from the site suggesting clothing was either manufactured or repaired at the site while the basket splints are recorded as possible structural elements (Jones n.d.; Schroeder 1961). An olive pit, plum pit, and walnut shell were also recovered, though these three specimens appear to be modern (Jones n.d.; Schroeder 1961).

The faunal assemblage recovered from Catclaw Cave is different from the faunal remains recovered from Willow Beach which consisted of a few recovered faunal remains determined to be mountain sheep and desert tortoise during the 1950 excavations (Schroeder 1961). In 1936, Harrington’s excavations unearthed the remains of a grizzly bear buried in a hut and the 1947 excavations resulted in the identification of several faunal remains of mule deer (Schroeder 1961). Schroeder does not identify a specific number of recovered faunal remains for the identified mammals (Schroeder 1961). Only six fish vertebraes were recovered from Willow Beach, a significantly lower number than the 375 fish specimens recovered from Catclaw Cave. Miller identified the vertebraes as belonging to the Humpback chub (Schroeder 1961). Of the recovered faunal assemblage, only four worked bone tools were recovered. One fragmented awl, one possible flaker, a spatula like tool (possibly a scraper), and a bone with scrape marks suggesting meat had been removed from it (Schroeder 1961). The few faunal remains and limited bone tools recovered from Willow Beach stand in stark contrast to the Catclaw Cave assemblage further suggesting the cave was utilized for fishing and fish processing instead of year-round habitation.

Question 3: What trade networks are indicated by the artifact assemblage from Catclaw Cave?

The turquoise and Olivella shell beads recovered from the Catclaw Cave assemblage suggest trade networks were extensive throughout the Colorado River Valley. While no sourcing has been completed on the turquoise, the beads recovered share similar colors and physical texture characteristics with turquoise beads recovered from the Lost City Archaeological District and sites within northern Arizona. This suggests turquoise was traded from mines within southern Nevada and northern Arizona, the lack of turquoise at Catclaw Cave further suggests the importance of the stone and its use as a decorative element rather than an everyday tool.

Uniquely, Catclaw Cave has only three Olivella shell beads recorded, most sites within the Colorado River Valley and the Mojave Desert have a significant cache of Olivella beads. The Mojave people used Olivella shell beads as major sources of trade with other Indigenous communities within the Colorado River Valley, the Southwest, and the Great Basin. The lack of Olivella beads is interesting as with such proximity to Mojave Tribes, it seems highly likely members of the Mojave community used the cave during sojourns to trade fairs and other events. In fact, Wright himself recounts Mojave oral history regarding Catclaw Cave. Perhaps they had sold or traded the Olivella beads prior to coming to Catclaw Cave possibly obtaining additional ceramic or lithic materials to help with fish processing activities at the site. The Hualapai, who are descendants of the Patayan people, may have been uninterested in obtaining Olivella shell beads during trade with the Mojave people.

There are many similarities between the ceramic and figurine assemblages recovered from Catclaw Cave and Houses 47 and 112 in the Lost City complex, including ceramic wares and figurine style and construction. Excavations at House 47 and House 112 yielded a substantial number of Topoc Buff ceramic sherds congruent with Virgin Series ceramics produced in the Muddy River region (Shutler 1961:23; Lyneis 1984; Lyneis 1988; Rafferty 1990:10; and Gilreath et al 2011:62). The figurines and ceramics suggest that the Patayan peoples traded heavily with the Virgin Puebloan peoples near Overton, Nevada (Rafferty 1990:10).

<u>Question 4: What cultural groups used Catclaw Cave?</u>

Of the recovered assemblages, the botanical and ceramic assemblages identify the cultural groups that predominately utilized Catclaw Cave. The botanical assemblage recovered from Catclaw Cave suggests that members of the Patayan community utilized the site predominately during the Patayan II period. Using native plants such as yucca, cotton, and willow, people utilizing the cave were able to create hardy string materials in order to catch fish in the Colorado River. Woven string of yucca and cotton are frequently found throughout southern California and Arizona and are frequently associated with fishing activity conducted by Patayan peoples in the region.

The ceramic assemblage better defines use of Catclaw Cave by the Patayan peoples, whose use of the Pyramid Grey ceramic wares has been documented by archaeologists in the region since the late 1940s (Gilreath et al 2011; Schafer and Daniels 2010; Seymour 1997; Schroeder 1952; 1961; and Waters 1982). While Topoc Buff ceramic sherds are predominately found along the Lower Colorado River, it seems unlikely that the ceramics were manufactured using sediments available near Willow Beach and the paddle and anvil construction style is similar to Parker Buffware. The second largest ceramic assemblage recovered from Catclaw Cave included Cerbat Brownware (Wright et al 2008; Wright 1951). Cerbat Brownware ceramics are predominately utilized in eastern Arizona by members of the Hualapai and Yavapai tribes (Gilreath et al 2011; and NAU Ceramic manual 2001). A majority of the recovered ceramic assemblage suggests that the site was used predominately by members of the Patayan community.

Question 5: Why are there such wide variations in the reported occupation dates of the site?

Corn cobs recovered from Catclaw Cave represent one of the few intact botanical assemblages recovered in the Colorado River Valley. The corn specimens were initially analyzed by Dr. Mangelsdorf at Harvard University and thought to have been similar to the cobs recovered from the Montezuma Castle archaeological site in Arizona. Mangelsdorf's analysis, based purely on physical characteristics, dated the corn cobs to about 1200 AD, possibly suggesting that LAKE 33549 (a soft corn cob) was much older due to its pure maize composition. In the early 2000s, additional excavations in the Las Vegas Wash Larder Site (24CK1474) resulted in the discovery of intact corn cobs which were radiocarbon dated to the Terminal Archaic period, much earlier than initially believed (Deur and Confer 2011). Upon re-analysis in 2023, two corn cobs recovered from Catclaw Cave were submitted for radiocarbon dating, LAKE 33545 (a stiff corn cob) and LAKE 33550 (a stiff highly tripascoid corn cob) were tested. LAKE 33545 dated between 770 and 888 A.D. (or 1220 +/- 30 BP), roughly 400 years earlier than the initial date believed by Manglesdorf. LAKE 33550 dated between 1277 and 1322 AD (or 670 +/- 30BP), firmly placing use of the site within the last 600 years, as confirmed with additional radiocarbon dating completed in 2011 on various organic specimens (Gilreath et al 2011). The corn cobs recovered from Catclaw Cave represent a continued use and cultivation of maize along the Colorado River corridor suggesting that additional maize species were introduced much earlier resulting in stiff tripascoid and highly tripascoid corn cobs.

Cordage recovered from Catclaw was incorporated into the Gilreath et al 2011 report for the Reclamation; they report that radiocarbon dates extracted from the cordage ranged from 260 BP to 350 BP (see Table 23). Basket fragments, predominately coiled pieces, ranged from 360 to 505 BP and the recovered Figure-8 Sandal dated to 1110 BP. The Figure-8 Sandal recovered from Catclaw Cave is similar in style to a Close-weave hybrid Figure-8 sandal recovered from the Salt Cave by Mark Raymond Harrington in 1925 which was dated in to 1170 BP (see Figure 61).

Table 23: Radiocarbon Dates Obtained from Catclaw Cave.

Catalog Number	Item	Notes	Cal BP	Reference
LAKE 40940	Cordage	Cotton String	388	Gilreath et al 2012
LAKE 40951	Basketry	Coiled Basketry	425	Gilreath et al 2012
LAKE 40936	Basketry	Coiled Willow and Straw Basketry	528	Gilreath et al 2012
LAKE 40966	Basketry	Coiled Basketry	522	Gilreath et al 2012
LAKE 40895	Sandal	Figure-8 Sandal	1012	Gilreath et al 2012
LAKE 40955	Cordage	Cordage attached to meat	303	Gilreath et al 2012
Unknown	Charcoal	Charcoal	599	Gilreath et al 2012
Unknown	Plant material	Unidentified	645	Gilreath et al 2012
Unknown	Plant material	Unidentified	1879	Gilreath et al 2012
LAKE 40899	Fur	Rabbit Fur String	393	Gilreath et al 2012
LAKE 33545	Corn	Tripsacoid	1220 +/- 30	Beta Analytics (Swett)
LAKE 33550	Corn	Highly Tripascoid	670 +/- 30	Beta Analytics (Swett)

Figure 61: Sandals recovered from the Salt Cave at Lost City (National Museum of the American Indian; Sedar 2012).

Further research into sandal styles in North America suggest that the Figure-8 Sandal style was largely associated with the Puebloan peoples, this suggests that close ties existed between the people living within the Lost City and the Patayan peoples living within the Lower Colorado River Valley (Connolly and Barker 2008; Morris-Larsen 2020). Charcoal identified at the Cave dated to 1930 AD (Gilreath et al 2011) suggesting further disturbance and use of the site following contact with Europeans. The charcoal was recovered following an Archaeological Resource Protection Act investigation where a modern campfire and modern disturbance was noted within the cave.

The clay figurines recovered by Wright in 1949 suggest utilization during the Pueblo I and II periods (730-1150 AD) (Gilreath et al 2011:74). The assemblage is most similar to the figurines recovered at Houses 47 and 112 in the Lost City complex, where substantial amounts of Topoc Buffware sherds were also discovered during additional investigations at the site (Shutler 1961:23; Lyneis 1984; Lyneis 1988; Rafferty 1990:10; and Gilreath et al 2011:62).

Ultimately, the radiocarbon dates recovered by Gilreath et al 2011 and the radiocarbon dates obtained on LAKE 33545 and LAKE 33550 further support Wright's initial theories outlined in his 1949 Preliminary Report, that Catclaw Cave was predominately utilized during the Patayan period in the last 600-years. The similarities between artifacts recovered from the Lost City Archaeological Complex and Catclaw Cave suggest possible use of the site during the Basketmaker III and Pueblo I and II time periods, but it seems more likely that the Catclaw Cave assemblage suggests a small trade relationship between the Lost City and the. Patayan peoples of the Colorado

River. While ceramics, minerals, shells, and lithics do not appear to have been traded, perhaps the use of Catclaw Cave as a fish processing site meant there was little use for decorative pottery wares, decorative jewelry, or additional lithics outside of those used for fishing and fish processing activities. Catclaw Cave suggests that the Colorado River connected people from all different kinds of cultural backgrounds identifying relationships between the Patayan peoples, the Puebloans, and peoples living in eastern Arizona.

Chapter 6: Significance of Research

Re-analyzing the artifact assemblage recovered during the 1949 excavation of Catclaw Cave is an essential step in understanding Lower Colorado River Valley. Before the damming of the Colorado in the 20th century, excavations of only two archaeological sites were undertaken in the Lake Mohave area; Catclaw Cave and Willow Beach represent the various sites destroyed by inundation of the reservoir and the potential data that could have been recovered from these sites.

It is important to re-analyze and interpret the artifacts recovered at Catclaw to establish a better understanding of the use of Catclaw Cave, the Patayan culture and use along the Lower Colorado River Valley, potential trade networks between the valley and other southwestern communities, shifts in use of the site by other cultural groups, and time periods of primary use. A better understanding of the region's history can help federal land managing agencies establish more appropriate mitigation strategies for any re-discovered or newly discovered archaeological sites along the Lower Colorado River as environmental conditions continue to lead towards drawdowns of reservoirs.

Conducting use-wear analysis on groundstone and identified lithic specimens, incorporating interpretations of the recovered assemblage using research conducted recently in the region and comparing the assemblage to artifacts recovered from sites throughout the Southwest, analyzing construction materials and stylistic traits, and botanical specimens identified potential use of Catclaw Cave. As construction of the Dams destroyed a majority of the archaeological sites along the Lower Colorado River, the re-analysis and interpretation of the Catclaw Cave assemblage can allow archaeologists and federal land managing agencies to envision what life in the Lower Colorado River Valley before contact with Europeans may have been like.

Based on the re-analysis of recovered artifacts, Catclaw Cave was predominately used as a seasonal habitation spot during periods of hunting. The evidence suggests little hunting occurred at the site, which is unsurprising given the lack of large game in the area. Occupants instead focused on fishing, which according to ethnographic reports and historic records would have been extremely successful at Catclaw Cave due to the natural lazy river. The lithic materials recovered are small and poor in quality, little groundstone was recovered in comparison to other archaeological sites which may have been used for lithic processing. The lack of lithic materials from the site further suggests evidence of a lithic procurement site within the area, thought to have been inundated by Lake Mojave, the lithic site may have been missed during survey of the area or overlooked due to the number of caves and rockshelters and ultimately the expedited time frame for which Cultural Resource Management in its infancy was conducted.

The ceramic and figurine collections represent a majority of use by members of the Patayan culture, further suggesting that little to no overlap occurred between the Patayan peoples living at Catclaw Cave and Virgin Puebloan peoples living at the Lost City complex until much later in time. Catclaw Cave seems to have been used predominately within the last 700-years with some use in the Basketmaker III period and occasional use in the post-contact period. The recovered ceramics are predominately plain, with little to no decoration on the Topoc Buff sherds, the most common ceramic ware recovered from Catclaw Cave. The size of the recovered rim sherds suggests ceramics were utilized at the site for storage, though pit hearth features suggest some cooking may have been conducted at the site.

The recovered faunal assemblage identifies the primary use of Catclaw Cave as a fish processing site, the only type of site identified within the Lake Mojave portion of the Lower Colorado River system. Bone tools, specifically Mule deer and bird remains, suggest an emphasis on processing activities and basketry which was predominately used by fisherman along the Colorado River and its tributaries, further suggests the site was predominately used for fish processing. The faunal assemblage and ethnographic accounts regarding the importance of fish within the Colorado River Valley are evidence of the extreme ecological changes that have occurred since the Colorado River Valley was dammed. Each of the three identified fish species are now listed as Endangered Species and have been re-introduced to the Lower Colorado River system through conservation efforts associated with the Multi-Species Conservation Program spear headed by the Reclamation. Though they have been re-introduced, the Humpback Chub, Colorado Pikeminnow, and Razorback Sucker are extremely small in comparison to the fish recovered from Catclaw Cave.

Botanical materials recovered from the site support its use as a fish processing site and support ethnographic accounts focused on basketry practices in relation to Patayan fishing methods. The recovered corn specimens support the initial radiocarbon dates recovered from the cordage and Figure-8 sandal in Gilreath et al 2011, suggesting the site was predominately utilized in the last 700s years by members of the Patayan community.

Wright's analysis was limited to the small number of excavations that had been conducted within the Colorado River Valley, he relied heavily on Schroeder's interpretation at Willow Beach which represents another important site within the valley. Both Catclaw Cave and Willow Beach have little to no stratigraphy, most likely due to their proximity to the Colorado River, and would have been difficult to date without the use of C14 dating. Schroeder's work suggests a connection between Willow Beach and the Lost City complex, and Wright also discusses the Lost City archaeological sites heavily within his thesis regarding Catclaw Cave. I believe this was done for two reasons. First, the lack of archaeological excavation and reconnaissance in the region at that time meant only the Lost City, Willow Beach, and Catclaw Cave had been effectively excavated and such evidence made available to other researchers at that time. Wright and Schroeder had little choice but to compare and contrast their findings along the Colorado River with those of Harrington's along the Muddy-Virgin River confluence. Second, the scale and international publicity of the Lost City excavations further motivated Schroeder to connect the Willow Beach site with that of the Lost City excavations and most importantly Mark Raymond Harrington.

Further research along the Colorado River should be undertaken to determine, first the extreme impacts inundation has on archaeological sites including lithic scatters and pueblos and second to further determine use and habitation of the river valley prior to the arrival of Europeans. Corn recovered from Willow Beach should be dated using

C14 dating techniques and compared to those cobs recovered from Lost City, the Las Vegas Wash, and Catclaw Cave to determine a more robust chronology of use and more specifically maize cultivation within the Colorado River Valley. Work at the Lost City and other Virgin Puebloan sites should continue, with more focus on recovering data pre-dating and post-dating the Puebloan occupation rather than focusing on only one cultural group. It seems highly unlikely that the Virgin Puebloan abandoned the region, it seems more likely members of the Lost City complex were initially part of the Patayan community but chose to become part of the Virgin Puebloan society following years of trade and intermarriage. While some most likely left the region moving east to settle with other Puebloan communities, some stayed and rejoined the Patayan communities within the Colorado River Valley brining their new-found technologies and designs for ceramics and figurines with them.

The resulting curation crisis from years of excavations and minimal collection analysis has led to a lack of knowledge of historic collections not just for federal managers and archaeologists, but for members of the Indigenous and descendant community who are unable to easily access these legacy collections. Museum-based archaeology offers a unique opportunity to re-locate and identify legacy collections while promoting transparency with the Indigenous and Descendant community. This project focused on museum-based archaeology, in cooperation with federal land managing agencies, whose vast archaeological collections are ripe with research potential. Cultural Resource Management is a major source of archaeological work within the

Lower Colorado River Valley and recovered data from construction projects should be analyzed before new excavations and projects are carried out along the river.

Planning for this project was significantly challenged by the Covid-19 Pandemic which resulted in zoom meetings between involved parties and led to delays in obtaining permissions from federal agencies whose management of the collections was essential to gaining access.

The first most apparent result of this project was the lack of information regarding the destructive analysis permissions process. The lack of guidance for management of museum collections within federal agencies and the inconsistency between agency procedures and standards has led to various methods of management which vary depending on the agency. This makes it increasingly difficult to work with federal agencies in a student or researcher capacity. The Forest Service for example has little to no guidance for management of its museum collections, while the NPS LAKE has a robust albeit confusing process requiring multiple permits.

Secondly, the call to complete numerous projects under Section 106 of the National Historic Preservation Act has prevented federal archaeologists from engaging in Section 110 projects that further the understanding of the landscape and resources the agency is legally required to protect. Because of this narrow focus on Section 106 compliance, federal archaeologists are unable to prioritize collection management. For most federal archaeology programs, the lack of funding provided for anything outside of Section 106 relegates any Section 110 projects “want to dos” rather than “need to do” projects. Higher management fails to understand the legal mandates and requirements outlined in Federal Historic Preservation Law outside of Section 106, which is frequently discussed in relation to the National Environmental Policy Act. A majority of federal employees have no idea the National Historic Preservation Act is a separate law, let alone that Federal Archaeologists are responsible for compliance with nearly 28 Federal Laws, not including additional executive orders or regulatory statues including Paleontological Resource Protection.

In order to improve understanding amongst higher management, federal archaeologists must communicate the importance of compliance with Federal historic Preservation law outside of Section 106. The newly published regulations associated with compliance under the Native American Graves Protection and Repatriation Act (NAGPRA), will hopefully lead to the continued repatriation of ancestors, funerary items, sacred items, and items of cultural patrimony. These regulations will also hopefully shed light on the significant issues surrounding collection management and the lack of compliance with NAGPRA and curation regulations over the last thirty-years.

Third, the lack of training within federal agencies for handling museum collections and the lack of succession planning has left a void of confusion and extensive loss of information further leading to the loss of museum collections which have been left behind.

Fourth, the curation crisis is a direct result of Agencies having inadequate staff and funding to complete inventories, acquire collections, or relocate collections taken to universities or museums outside of the region in which the site is located. Most federal agencies require a federal archaeologist to complete all compliance work under the

National Historic Preservation Act, Archaeological Resource Protection Act investigations and permits, as well as museum curation, Tribal Relations, Indian Land Trusts, and paleontological resource protection. Depending on the agency and the amount of funding provided, little to no training may be available, which means museum collections managed by federal agencies are curated to the best of the archaeologist's ability. Collections loaned to other institutions or friends for research were not recorded to the same degree in the past, so many collections have simply disappeared forgotten amongst the paperwork and unfinished reports.

Finally, and most importantly, the lack of access to collections for members of the Indigenous and Descendant community is a significant challenge. During the consultation process for this project, it became apparent that Tribes had no idea where collections from Willow Beach, Catclaw Cave, or other sites were, nor were they aware of whom to contact. Consultation with Indigenous peoples regarding collections resulting from previous excavations is essential and should be a priority for Federal agencies moving forward.

While the Department of the Interior has taken steps to remedy the lack of guidance at a Department level and some agencies have taken the initiative to establish National and Regional protocols such as Forest Level Collection Management Plans, the lack of succession planning has put these steps forward at risk. Without more financial and leadership support, the museum collections of federal land management agencies will continue to exist in a state of disarray. Public outreach and internal outreach within Federal agencies are essential to conveying the importance of museum collection management on a federal level. Staffing Cultural Resource Management programs appropriately and ensuring dedicated and knowledgeable staff can actively work on recovering lost collections in a collaborative manner with the Indigenous and Descendant Community is essential to the success and future of Cultural Resource Management in the United States.

The Lower Colorado River Valley remains an understudied region nestled between the Great Basin and the Southwest. Catclaw Cave represents a unique site type, focused on fish processing along the river, and supports the theory that the Patayan culture originated in the Colorado River Valley and spread west to Nevada and California and east to Arizona. The chronology of the region extends beyond the radiocarbon dates received from Catclaw Cave and confirms that people have utilized the Colorado River for thousands of years. The powerful Colorado continues to provide water to millions of people living in the basin today, but the river has always played a vital role in the history of the basin. As drought conditions continue to impact reservoirs in the basin, the discovery of additional archaeological sites will continue to expand our understanding of the history of use and habitation of the Colorado River Valley.

Appendix A: Collaborative Partners

Federal Partners

I coordinated with NPS LAKE and we are working through the approval process for the C14 testing in the hopes a paper will be published to discuss this important site and the chronology of the Lower Colorado River Valley.

Indigenous and Descendant Communities

As mentioned in the Consultation Section of this prospectus, I attempted to collaborate with Indigenous and descendant communities who may have traditional, cultural, and/or geographic interest in the Lower Colorado River Valley area (see Table A1). Letters were not sent to Tribal contacts until March of 2023, as the collection is under management by NPS LAKE, only they can legally contact the Tribal contacts regarding the project.

Repositories

A majority of the Catclaw Cave assemblage is curated at the MNA (MNA) in Flagstaff, Arizona (Attachment A1). The University of Michigan in Anne Arbor, Michigan (Michigan) was identified as a potential repository during the background research portion of this project and has confirmed portions of the Catclaw Cave collection is curated within two of their facilities (Attachment A2). As of March of 2021, the Lost City Museum in Overton, Nevada identified the museum was exhibiting a small portion of the Catclaw Cave collection on loan from MNA and NPS LAKE. The Amerind Museum in

Tucson, Arizona has also confirmed the seven corn cobs that were previously curated at Harvard University in Cambridge, Massachusetts are now curated at their facility in Tucson (Attachment A3). This project has provided NPS LAKE and the Reclamation with an updated finder's guide as well as re-established the Catclaw Cave Collection at one repository rather than five. This is in concurrence with the Department of Justice’s findings in the 2008 Inspector General’s report to the Department of Interior regarding federally owned and curated collections which should be housed in limited facilities to reduce the risk of loss, theft, oversight, and ultimately split-collections.

Grant Funding

The Arizona Archaeological and Historical Society provided funding for part of this project through the 2022 Travel Grant Award. With funding received through this grant, I was able to travel to MNA and review the Catclaw Cave collection, completing the non-destructive physical analysis of the collection using both photographs and a USB Dino Lite Microscope.

The Nevada Archaeological Association provided funding for part of this project through the 2022 M.A. Student Research Grant Award. With funding received through this grant, two corn cobs were radiocarbon dated. The results of this analysis are included in this thesis.

Table A. 1: Tribal Nations Contacted During Consultation for This Project.

Tribal Nation
Moapa Band of Southern Paiute
Las Vegas Tribe of Paiute Indians of the Las Vegas Indian Colony
Chemeheuvi Indian Tribe of the Chemeheuvi Reservation
Fort Mojave Indian Tribe of Arizona, California, and Nevada
Hualapai Indian Tribe of the Hualapai Indian Reservation
Havasupai Tribe of the Havasupai Reservation
Colorado River Indian Tribes
Hopi Tribe of Arizona
Pueblo of Zuni
Yavapai-Apache Nation
Yavapai-Prescott Indian Tribe
Tonto Apache Tribe of Arizona
Paiute Indian Tribe of Utah
Kibab Band of Paiute Indinas of the Kibab Indian Reservation

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Appendix C: Tables

Table C. 1 Total Counts Recorded by Wright (1954).

Artifact		Count
Chipped stone		
	Scrapers	>_3
	Projectile Points	>4
	Knives	>2
	Drills	2
	Spokeshaves	>1
Cobble Tools		
	Chopper	>2
	Pulping plane	1
	Hammerstones	>1
	Possible polishing stones	3
	Pigment grinding cobbles	2
Groundstone		
	Metates	>1
	Manos	>1
Mineral		*24*
	Turquoise	2
	Hemtate	20
	Malachite	1
	Halite	1

Worked Bone		
	Notched scapaluae	2
	Eyeless Needles	>1
	Bone awls	>2
	Bone tinklers	3
	Bone die	1
	Bone snare pin	1
	Bone tube	1
	Bone spatula	1
	Bone disc	1
	Misc bone	>3
Faunal		
	Big Horn Sheep (Paleontology)	1
	Bison	Unknown
	Beaver	Unknown
	Bighorn Sheep	Unknown
	Bobcat	Unknown
	Coyote	Unknown
	Cottontail	Unknown
	Ground Squirrel	Unknown
	Jackrabbit	Unknown

	Kangaroo Rat	Unknown
	Packrat Woodrat	Unknown
	Quail	Unknown
	Owl	Unknown
	Hawk	Unknown
	Turtle	Unknown
	Lizard	Unknown
	Undi. Amphibian	Unknown
	Fish	375
Floral		
	Corn	8
	Agave	Unknown
	Arrow-Week	Unknown
	Barrel Cactus	Unknown
	Bottle Gourd	Unknown
	Buffalo Gourd	Unknown
	Pumpkins Squash (Cucurbita mixta)	2
	Pumpkins/Squash (Cucurbita pepo)	6
	Cliffrose	Unknown

	Climbing Milkweed	Unknown
	Dropseed	Unknown
	Primrose	4
	Gramma Grass	1
	Legume	1
	Mesquite (Prosopis juliflora)	3
	Mesquite and Screwbean (Prosopis pubescens)	5
	Perennial Grass	1
	Pine Tree	
	Pricly Pear	20
	Reed Grass	
	Virginia Creeper	Unknown
	Willow	Unknown
	Yucca	Unknown
Worked Hoof and Bone		*3*
	Hoof tinklers	2
	Antler flaker	1

Shell		*3*
	Olivella beads	3
Clay Objects		
	Figurines	6
	Unfired miniature pottery	24
	Tabular clay items	2
	Miscellaneous Items	>15
Perishable Materials		
	String	>25
	Basketry	8
	Sandals	2
	Bark bundles	2
	Arrow shaft	1
	Hide	>9
	Misc wood fragments	>5
Pottery		*1078*
	Pyramid Gray	892
	Cerbat Brown	57
	Parker Buff	49

	Aquarius Black/Gray	29
	Boulder Gray	14
	Aquarius Brown	8
	North Creek Gray	6
	Sandy Brown	6
	Parker Stucco	6
	Deadmans Gray	4
	Deadmans Black/White	4
	Boulder Black/Gray	2
	Deadmand Black/Gray	1
	Undi. Black/Gray	1
Human Remains		*3*
	Human Hair	1
	Human Mandible	1
	Human Tooth	1

Table C. 2: Total Counts Recorded by Gilreath (et al 2011).

Artifact		Count
Chipped stone		
	Scrapers	0
	Projectile Points	9
	Knives	0
	Drills	2
	Spokeshaves	0
	Flakes	7
	Bifaces	24
	Debitage	6
Cobble Tools		
	Chopper	0
	Pulping plane	0
	Hammerstones	<24
	Possible polishing stones	<1
	Pigment grinding cobbles	<1
Groundstone		0
Mineral		*24*
	Turquoise	4
	Hemtate	21
	Salt	1
	Gypsum	1
	Limonite	1
Worked Bone		

	Notched scapaluae	2
	Eyeless Needles	0
	Bone awls	13
	Bone tinklers	3
	Bone die	1
	Bone snare pin	1
	Bone tube	0
	Bone spatula	0
	Bone disc	1
	Misc bone	>3
Faunal		0
	Tooth	1
Floral		*0*
	seeds	unknown
Worked Hoof and Bone		*3*
	Hoof tinklers	2
	Antler flaker	1
Shell		*3*
	Olivella beads	3
Clay Objects		unknown
	Figurines	7
	Unfired miniature pottery	24
	Tabular clay items	2

	Miscellaneous Items	unknown
Perishable Materials		26
	String	12
	Basketry	9
	Sandals	2
	Bark bundles	0
	Arrow shaft	0
	Hide	5
	Misc wood fragments	2
Pottery		*unknown*
	Paiute Brrownware	unknown
	Boulder Gray	unknown
	North Creek Gray	unknown
	Deadman	unknown
	Pyramid Gray	unknown
	Parker Buff	unknown
	Parker Stucco	unknown
	Cerbat Brown	unknown
	Aquarius Brown	unknown
	Sandy Brown	unknown
	Prescott Black and Gray	unknown
	Tizon Brownware	unknown

	Extraneous?	unknown
	Unknown	unknown
Human Remains		*3*
	Human Hair	1
	Human Mandible	0
	Human Tooth	0

Table C. 3: Total Counts Recorded by MNA.

Artifact		Count
Chipped stone		
	Scrapers	16
	Projectile Points	6
	Knives	9
	Drills	2
	Spokeshaves	0
Cobble Tools		
	Miscellaneous Stone	>10
Groundstone		
Mineral		*24*
	Turquoise	2
	Hemtate	1
	Yellow Ocher	1
Worked Bone		
	Notched scapaluae	2
	Eyeless Needles	0
	Bone awls	13
	Bone tinklers	3
	Bone die	1
	Bone snare pin	1
	Bone tube	0
	Bone spatula	0

	Bone disc	1
	Misc bone	>3
Faunal		0
	Tooth	1
Floral		
Worked Hoof and Bone		*3*
	Hoof tinklers	2
	Antler flaker	1
Shell		*3*
	Olivella beads	3
Clay Objects		
	Figurines	5
	Unfired miniature pottery	24
	Tabular clay items	2
	Effigy	1
	Miscellaneous Items	>15
Perishable Materials		
	String	>25
	Basketry	8
	Sandals	2
	Bark bundles	0
	Arrow shaft	0
	Hide	>9
	Misc wood fragments	0

Pottery		*1668*
	Deadman's Gray, Black and White, Black and Gray, and Flagstaff Black and White	13
	Parker Stucco	4
	Sandy Brown	5
	Misc.	843
	Paiute/Pyramid Gray	131
	Cerbat Brownware	25
	North Creek	5
	Boulder Gray	12
	Aquarius	8
	Parker Buff	53
	Prescott Black and Gray	24
	Paiute	22
	Pyramid Gray	523
Human Remains		*3*
	Human Hair	1
	Human Mandible	0
	Human Tooth	see faunal

Table C. 4: Total Counts Identified During this Project.

Artifact		Count
Chipped stone		
	Scrapers	6
	Projectile Points	9
	Knives	8
	Drills	2
	Spokeshaves	>1
Cobble Tools		
	Chopper	5
	Pulping plane	2
	Hammerstones	9
	Possible polishing stones	3
	Pigment grinding cobbles	2
	Polishing Stone	1
	Bifaces	16
	Flakes	36
	Debitage	6
	Misc. Stone	
Groundstone		0
Mineral		*24*
	Turquoise	4
	Hemtate	21
	Gypsum	1
	Limonite	4

	Salt	1
Worked Bone		
	Notched scapaluae	2
	Eyeless Needles	2
	Bone awls	11
	Bone tinklers	3
	Bone die	1
	Bone snare pin	1
	Bone tube	1
	Bone spatula	1
	Bone disc	1
	Misc bone	>3
Faunal		
	Tooth	1
	Big Horn Sheep (Paleontology)	1
Floral		
	Corn	8
	Agave	4
	Arrow-Week	Unknown
	Barrel Cactus	Unknown
	Bottle Gourd	Unknown
	Buffalo Gourd	Unknown

	Pumpkins Squash (Cucurbita mixta)	2
	Pumpkins/Squash (Cucurbita pepo)	6
	Cliffrose	Unknown
	Climbing Milkweed	Unknown
	Dropseed	Unknown
	Primrose	4
	Gramma Grass	1
	Legume	1
	Mesquite (Prosopis juliflora)	3
	Mesquite and Screwbean (Prosopis pubescens)	5
	Perennial Grass	1
	Pine Tree	
	Pricly Pear	20
	Reed Grass	4
	Virginia Creeper	Unknown
	Willow	8
	Yucca	6
Worked Hoof and Bone		*3*
	Hoof tinklers	2
	Antler flaker	1
Shell		*3*

	Olivella beads	3
Clay Objects		
	Figurines	7
	Unfired miniature pottery	17
	Tabular clay items	2
	Miscellaneous Items	15
Perishable Materials		
	String	>25
	Basketry	8
	Sandals	2
	Bark bundles	2
	Arrow shaft	1
	Hide	5
	Misc wood fragments	5
Pottery		*1078*
	Pyramid Gray (Topoc Buff)	886
	Cerbat Brown	74
	Parker Buff	53
	Aquarius Black/Gray	29
	Boulder Gray	12
	Aquarius Brown	8

	North Creek Gray (Tusayan White Ware)	5
	Sandy Brown	4
	Parker Stucco	4
	Deadmans Gray	9
	Paiute	24
	Boulder Black/Gray	4
	Deadmand Black/Gray	1
	Prescott Black and Gray	24
Human Remains		*1*
	Human Hair	1
	Human Mandible	0
	Human Tooth	see faunal

Table C. 5: Floral Assemblage Recovered from the University of Michigan Ann Arbor During this Project.

Artifact		Count
Floral		
	Corn	8
	Agave	4
	Arrow-Week	Unknown
	Barrel Cactus	Unknown
	Bottle Gourd	Unknown
	Buffalo Gourd	Unknown
	Pumpkins Squash (Cucurbita mixta)	2
	Pumpkins/Squash (Cucurbita pepo)	6
	Cliffrose	Unknown
	Climbing Milkweed	Unknown
	Dropseed	Unknown
	Primrose	4
	Gramma Grass	1
	Legume	1
	Mesquite (Prosopis juliflora)	3
	Mesquite and Screwbean (Prosopis pubescens)	5
	Perennial Grass	1
	Pine Tree	
	Pricly Pear	20
	Reed Grass	4
	Virginia Creeper	Unknown
	Willow	8
	Yucca	6

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Curriculum Vitae

Emily C. Swett

Archaeologist and Historian

echristineswett@gmail.com

Summary

I have experience in several fields concerning environmental and cultural resource compliance in accordance with the various laws of the United States Government. Her responsibilities have included preparing and reviewing consultation letters, conducting archaeological surveys, preparing, and reviewing Museum Plans, curating Museum collections, updating and reviewing data call responses, creating maps on GIS, designing exhibitions, and compiling research reports. I am also a qualified Resource Advisor and Fire Archaeologist and hold an active First Aid license.

Experience

Archaeologist | 0193 | GS-09 **July 2022- Present**

Department of Agriculture, United States Forest Service, Region 1, Bitterroot National Forest

Supervisor: Mathew Werle | *matthew.werle@usda.gov* | *(406) 363-7183*

- Conducting archaeological surveys, completing archaeological inventory reports, site condition assessments and eligibility determinations as well as recordation utilizing Geographic Information Systems (GIS), consultation with the State Historic Preservation Office and Tribal Historic Preservation Offices under Section 106 of the National Historic Preservation Act including Memorandum of Agreement development, and consultation under the National Phasing Programmatic Agreement (NPPA) regarding multi-year large undertakings associated with the Bitterroot Front Project.
- Completed surveys and reports under Section 110 of the National Historic Preservation Act, public outreach, and data management associated with the Natural Resource Manager (NRM) Heritage system.
- Finalized a National Register of Historic Places Nomination for the West Fork Ranger Station and presented on the nomination to the Montana State Review Board. The site was listed on the National Register.

- Conducting trainings for Forest Staff regarding Federal Historic Preservation Law compliance and assisted in training Heritage Staff in Region 1 on the NRM Heritage system.
- Created and managed project tracking systems and tracked the allotted Heritage Program budget and spending for Fiscal Years 2023 and 2024.
- Curation of museum collections including archival records, artifacts, and associated records, development of a Heritage Stewardship Enhancement (HSE) Project proposal for museum curation and establishment of a secure museum storage space, authored the Collection Management Plan for the Bitterroot National Forest, and conducted museum inventories.
- Resource Advisor (READ) responsibilities specifically focusing on wildfires in the wildland urban interface and reducing impacts of fire suppression efforts on archaeological sites and historic properties.

Pathways Student Intern | GS-03 **June 2019- July 2022**

<u>Department of The Interior, Bureau of Reclamation, Lower Colorado Basin Regional Office, Resource Management Office</u>

Supervisor: Marianne Stemmer | *mstemmer@usbr.gov* | *(702) 293-8255*

Experience in Cultural Resource Management

- Reviewing archaeological survey reports, conducting archaeological surveys for site damage, updating archaeological site forms and condition assessments, compiling Archaeological Site Files and data in preparation for use in a Geographic Information System Database, drafting and assisting with consultations under Section 106 and Section 110 of the National Historic Preservation Act, reviewing WaterSMART Grant Applications for Section 106 compliance requirements, and participation and coordination with the Native American Affairs Office to identify potential projects for the Indian Youth Service Corps.
- Assisted in the investigation of the Layout of Boulder in collaboration with the Engineering Services Office, planned out future exhibitions, investigated the Boulder City Water Line for the National Park Service and the Boulder City Historic Society, investigated and drafted a report of the Willow Beach Gauging Station for the National Park Service, investigated and corrected Cultural Resource Management Work Plans in accordance with updated Federal Laws, updated the Museum Property Plans including but not limited to the Scope of Collections Statement and the Integrated Pest Management Plan, created a museum caliber exhibition in collaboration with Hoover Dam personnel showcasing the Hoover Dam Police Force, investigated and prepared a report for the Hoover Dam regarding recovered artifacts, drafted consultation letters on behalf of Reclamation to address projects in need of consultation from the State Historic Preservation Office of Nevada, constructed a report examining Historic Railroads used in the Construction of Hoover Dam, and coordinated with the Lost

City Museum in Overton, Nevada, to produce a scavenger hunt with culturally significant facts about Reclamation for International Archaeology Day.

- Conducting Annual Museum Properties Inventories under the Department of Interior guidelines, conducting 100% Museum Property Inventories under Department of Interior guidelines, updating museum property work plans, updating the Interior Collections Management System with new accessions and catalogue records for newly accepted collections, participating on the testing committee for the development of the Museum Collections Management System for the Department of the Interior, completing Museum Property Annual Summary Reports, creating an exhibit on the Hoover Dam Police Force, and facilitating Artifact Loan Agreements for museum caliber exhibits and public outreach initiatives.
- Identification of human remains, associated and unassociated funerary objects, and items of cultural patrimony for repatriation under the Native American Graves Repatriation Act, and participation in the National NAGPRA Grant Review Committee as an assistant reviewer for the Bureau of Reclamation.
- Authored an article on the Old Mormon Fort for an internal newsletter for the Region.

Other experience

- Compilation of an Environmental Impact Statement checklist and an Environmental Assessment checklist in accordance with the National Environmental Policy Act (NEPA), participating in paleontological surveys, compilation and propagation of Water Quality data collected on surveys of Reclamation reservoirs and waterways from 2006-2020, Southern Nevada Agency Partnership Program (SNAP) archival project participation and SNAP program history summary and compilation, participation in two Reclamation WaterSMART Grant Program Committees, and participation in budgetary planning for two fiscal years.

Pathways Student Intern | GS-03 **June 2018- August 2018**

Department of The Interior, Bureau of Reclamation, Lower Colorado Basin Regional Office, Resource Management Office

Supervisor: Marianne Stemmer | mstemmer@usbr.gov | (702) 293-8255

Experience in Cultural Resource Management

- Participated in the creation of a contract with a Private Cultural Resource Firm, participated in a Native American Tribal Consultation regarding the PG&E chromium spill cleanup in Topock, AZ, participated in an archaeological survey of Beal Lake, AZ, participated in a historical survey of Hoover Dam, participated in a field review of Mormon Mesa including a review of Prehistoric Rock Formations – the Double Negative – and the Old Spanish Trail, participated in a field review of

Squatters Camp (a former Hoover Ville from the 1930s) in accordance with Section 106 of the National Historic Preservation Act.

- Investigated the "New" London Bridge located in Lake Havasu, Arizona, drafted a Section 110 report on survey work at Beal Lake, constructed an exhibition on the Old Mormon Fort, Roosevelt Dam, and St Thomas, NV, and reviewed a Section 110 report on survey work at Ehrenberg, Arizona.
- Facilitated an Artifact Loan Proposal with the National Park Service Lake Mead Recreational Area for Reclamation display on St. Thomas and the Old Mormon Fort.

Pathways Student Intern | GS-02 **June 2017- August 2017**

Department of The Interior, Bureau of Reclamation, Lower Colorado Basin Regional Office, Boulder Canyon Operations Office

Supervisor: Jamie Bowen | jbowen@usbr.gov | *(702) 293-8349*

Experience in Water Accounting and Verification

- Compiled data regarding Water Users of the Lower Colorado Basin from 1964 to 2017 in preparation for public release per the Freedom of Information Act and assisted in recording agricultural lands around the Lower Colorado Region using the Geographic Information System.

Education

M.A.	Anthropology, University of Nevada Las Vegas Thesis: "A Re-analysis of the Artifacts Recovered from Catclaw Cave" Advisor: Karen Harry | karen.harry@unlv.edu | 702-895-2534 Specialization in Archaeology Las Vegas, NV, USA	**2024**
	Archaeological Field Practicum, University of Nevada Las Vegas Pahrump, NV, USA	2022
	Archaeological Field School, the Strawberry Banke Museum Portsmouth, New Hampshire, USA	2021
B.A.	History, University of Nevada Reno Thesis: "The Symbolism of Boudicca"	**2020**

Advisor: Edward Schoolman | eschoolman@unr.edu |775-682-8964
Minor: Archaeology
Reno, NV, USA

Undergraduate Course Work, Universitá Degli Studi della Tuscia 2018
Viterbo, Lazio, Italy

Archaeological Survey Field School, National University of Ireland Galway 2018
Lisdoonvarna, County Claire, Ireland

Training

Archaeological Field School **2018**

National University of Ireland Galway, Lisdoonvarna Ireland

- The Irish Fieldschool of Prehistoric Archaeology: Total Station Survey, 3D Modelling, QGIS Introduction, Geophysical Survey, and Recording of the prehistoric ceremonial complex Knockloon Hill.

Archaeological Field School **2021**

The Strawberry Banke Museum, Portsmouth, New Hampshire, USA

- Due to the Novel Coronavirus, a majority of field schools were either canceled or relegated to local students only. This virtual field school offered modules exploring material and digital techniques used by archaeologists to excavate, analyze, and curate archaeological material, especially during the pandemic when fieldwork was impossible. Following the results of analyzed materials recovered in the field, the Strawberry Banke Museum undertook virtual public outreach projects.

Archaeological Field Practicum **2022**

University of Nevada Las Vegas, Las Vegas, Nevada, USA

- This course offered hands-on experience in the field methods used by archaeologists. Students learned basic survey and mapping techniques, artifact identification, field documentation, and laboratory methods. Graduate students also received training in how to serve as a crew chief. The course involved archaeological fieldwork at a site in the Pahrump Valley so students could gain experience working on a prehistoric archaeological site.

Red-Card Qualification Training and Guard School **2022**

United States Forest Service, Region 1, Bitterroot National Forest, Trapper Creek Job Corps, Darby, Montana, USA

- This course followed mandatory training established by the Wildland Fire Training and Learning Portal and the Federal Emergency Management Agency. Courses included:
  -S-190 (Introduction to Wildland Fire Behavior)
  -L-180 (Human Factors in the Wildland Fire Service)
  -IS-700-B (Introduction to the National Incident Management System)
  -S-130 (Firefighter Training)
  -IS-100.C (Introduction to Incident Command System, ICS-100)
  -IS-200.C (Basic Incident Command System for Initial Response, ICS-200)
- Additionally, this course followed mandatory training for Resource Advisors, particularly Cultural Resource Specialists, established by the National Wildfire Coordinating Group. Courses included:
  - N-9042 (Resource Advisor) FY2022

Red-Card Qualification Training **2023**

(RT-130 Refresher and Work Capacity Test)

United States Forest Service, Region 1, Bitterroot National Forest, Hamilton, Montana, USA

- This course served as refresher training required to maintain an active red-card for a Resource Advisor and Fire Archaeologist qualification.

Skills

- **Computer Applications**: Word, Excel, PowerPoint, Access, Project, PDF, Publisher, Illustrator, Photoshop, etc.
- **Computer Platforms**: Windows, Apple, Boot Camp, ArcGIS, Past Perfect, NRM, Interior Collections Management System, ect.
- **Equipment Familiarity**: Magnetometer, Earth Resistance Surveying, Total station
- **Mediations**: Conflict Management, Native American Tribal Consultations, Inter-Agency (Federal, State, Non-Profit) Consultations, Federal interagency and Public University Collaborations

Presentations and Lectures

Poster Presentation **2021**

"119 Years Later: A Look at Reclamation's Historical Impacts and Uses Throughout Southern Nevada," Great Basin Anthropological Conference.

Workshop **2022**

"119 Years Later: A Look at Reclamation's Historical Impacts and Uses Throughout Southern Nevada," Lost City Museum, International Archaeology Day.

Lecture **2022**

"New Approaches to Archaeology: A Look at Museum-Based Archaeological Research in Southern Nevada and Along the Lower Colorado River," Nevada State Museum, Friends of the Museum Lecture Series.

Poster Presentation **2022**

"Excavating the Archives: A Re-analysis of the Artifacts Recovered from Catclaw Cave," Nevada Archaeological Association Annual Conference.

Paper Presentation **2022**

"Excavating the Archives: A Re-analysis of the Artifacts Recovered from Catclaw Cave" Three Corners Conference.

Cultural Resource Training **2023**

"Cultural Resource Management: Protection Heritage Resources on the Bitterroot National Forest" Trapper Creek Job Corps, Spring Guard School

Poster Presentation **2023**

"Excavating the Archives: A Re-analysis of the Artifacts Recovered from Catclaw Cave" Society for American Archaeology Annual Meeting.

Paper Presentation **2023**

"Excavating the Archives: A Re-analysis of the Artifacts Recovered from Catclaw Cave," Nevada Archaeological Association Annual Conference.

National Register Nomination Presentation **2023**

“The West Fork Ranger Station” Montana State Review Board.

Cultural Resource Training **2023**

“Cultural Resource Management: Protection Heritage Resources on the Bitterroot National Forest” Stevensville Ranger Station.

Cultural Resource Training, **2023**

“Cultural Resource Management: Protection Heritage Resources on the Bitterroot National Forest” Trapper Creek Job Corps,

Fall Guard School

Paper Presentation, **2023**

“Almost Famous: The Bitterroot Controversy and the Fight for Sustainable Forest Management,” Montana Historical Society Annual Conference.

Podcast Interview, “**2023**

Halloween Episode: The Magruder Massacre”.Lookout Podcast. Hamilton, Montana

Grants

Arizona Archaeological and Historical Society Travel Grant, *$500.00*.

April 2022

For “Excavating the Archives: A Re-Analysis of Artifacts Recovered from Catclaw Cave.”

Nevada Archaeological Association Joint Am-Arcs M.A. Research Grant

April 2022

$1,500. For “Excavating the Archives: A Re-Analysis of Artifacts Recovered from Catclaw Cave.”

Region 1 Forest Service Heritage Stewardship Enhancement Program,

October 2023

$12,000.00. For the development and construction of a new curation facility at the Bitterroot National Forest Supervisor's Office in Hamilton, Montana, and the curation of artifacts and records in appropriate curation materials.

Region 1 Forest Service Heritage Stewardship Enhancement Program,

October 2024

For updates to the Darby Ranger Station Visitor's Center at the Darby Ranger Station in Darby, Montana.

Nominations and Awards

Individual Award, *Bitterroot National Forest,* Region 1, United States Forest Service*,* Hamilton, MT. *September 2023*

Nomination for Administrative Assistant of the Year, *Lower Colorado Basin Regional Office*, Bureau of Reclamation, Boulder City, NV *May 2022*

Nominated for Archaeological Assistance

Nominated by: Lead Regional Archaeologist, Justin DeMaio, M.A.

Student Poster Award, *Nevada Archaeological Association Annual Meeting*

Tonopah, NV *April 2022*

Individual Time off Award, *Lower Colorado Basin Regional Office,* Bureau of Reclamation, Boulder City, NV *December 2021*

For significant work in archaeology

Star Award, *Lower Colorado Basin Regional Office,* Bureau of Reclamation, Boulder City, NV

For significant work in archaeology *May 2021*

Nomination for Administrative Assistant of the Year, *Lower Colorado Basin Regional Office*, Bureau of Reclamation, Boulder City, NV *May 2021*

Nominated for Archaeological Assistance

Nominated by: Lead Regional Archaeologist, Mark Slaughter, M.A.

Nomination for 2019 Thesis Award, *The Symbolism of Boudicca*, Department of History, University of Nevada Reno, Reno, NV *Fall 2019*

Advisor: Edward Schoolman PhD

Unpublished

Hoover Dam Police Coin Award, *Lower Colorado Basin Regional Office,* Bureau of Reclamation, Boulder City, NV *August 2019*

Awarded in recognition of the Hoover Dam Police Exhibit in the

Historic Administration Building of the Bureau of Reclamation

Organizations and Memberships

Montana Archaeological Society **2022-Present**

Professional Member

Society for American Archaeology **2021-2024**

Graduate Student Member

Montana Historical Society **2022-2023**

Professional Member

Arizona Archaeological and Historical Society **2021-2023**

Graduate Student Member

Nevada Archaeological Association **2021-2023**

Graduate Student Member

Archaeological Institute of America **2021-2022**

Graduate Student Member

The Honor Society of Phi Kappa Phi **2022-2023**

Graduate Student Member

Archaeology Southwest **2021**

Graduate Student Member

Society for California Archaeology **2021**

Graduate Student Member

American Alliance for Museums **2021**

Graduate Student Member

American Association for State and Local History **2021**

Graduate Student Member

Society for Historical Archaeology **2021**

Graduate Student Member

Arizona Archaeological Society **2021**

Graduate Student Member

Delta Gamma Fraternity **2016-2018**

Undergraduate Student Member