

Deep History Report: Mogollon Highlands of North Central Arizona

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ENV 57100: Ecology, Culture, and Community

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September 14, 2023

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Introduction

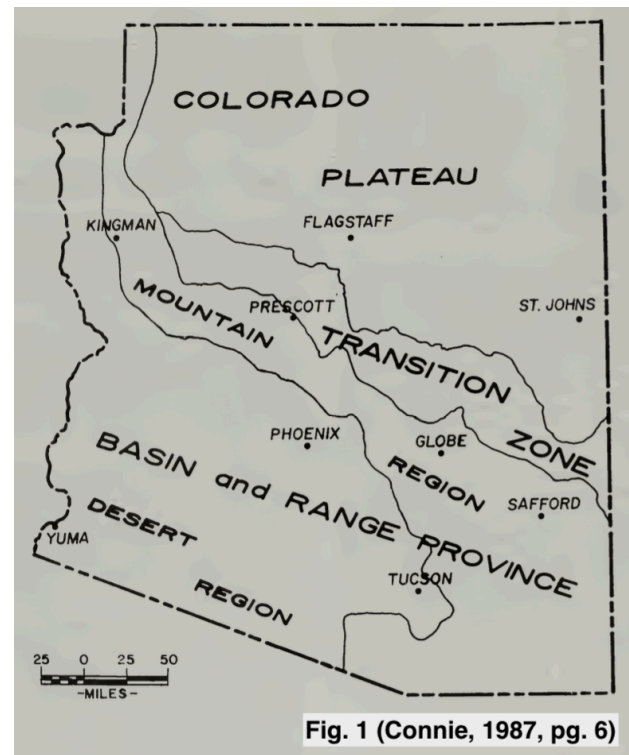
The Mogollon Highlands is a bioregional hotspot located between the Sonoran Desert and the Colorado Plateau of Arizona and New Mexico. The region holds a vast history of geology, ecology, biology, and anthropology. The most crucial component of this bioregion stands true throughout its history: this is a place of transition. The Highlands have acted as a transitional zone ever since the North American Continent's creation. Throughout the Geological, Paleo-American, Archaic, Horticultural, and Euro-American history, this bioregion has and will continue to be where many people, species, and landscapes converge and subsequently diverge. This intricate history is one deserving of a lifelong study, and this paper is aimed to help inspire curiosity in the reader in hopes that they can use this as a jumping point to learn even more about a place that so many call home. This paper takes a broad approach to understanding the depth of history throughout the Desert Southwest and the Mogollon Highlands, with particular attention placed on the areas surrounding Prescott, Arizona.

Geologic History

North America's geological formation results from the complex history of plate tectonics and continental collisions over billions of years. It is a complicated story that constantly changes as new knowledge is understood. The Mogollon Highlands region is characterized by its diverse geological features, including extensive fault systems, mountain ranges, basins, canyons, and desert landscapes.

The North American continent began to take shape around 1.3 billion years ago, as several small land masses collided and merged. Subsequent oceanic indentation of the landscape between 500 million and 250 million years ago deposited many layers of sediment that now form the colorful sandstone and limestone layers one can see in many portions of the Southwest (Research, 2018). During this period of deposition, the supercontinent of Pangea was formed between 200-300 million years ago and then separated later to form the Atlantic and Pacific oceans, as well as many of the current-day continents (U.S. Geological Survey, n.d.).

Jumping forward in time to the Laramide Orogeny, an event that began around 70 million years ago during the Mesozoic Era, the Farallon Plate began to move underneath the Western edge of the North American Plate (Willis, 2019). This event formed the Rocky Mountains and, due to the relatively low angle and high speed of this event, the Laramide Orogeny allowed the



aforementioned sedimentary layers to remain intact and uplift vertically, separating the Colorado Plateau from the Sonoran Desert (see Fig. 1) and creating the now visible layers of the Grand Canyon and the Mogollon Rim (U.S. National Park Service, 2023b).

A dramatically changing landscape marked this geologic period in the Mogollon Highlands. Uplifting sedimentary layers formed the Mogollon Rim and exposed the Red Rocks that now compose Sedona, the Grand Canyon, and the edge of the Colorado Plateau. Active faults opened up, allowing magma to flow to the Earth's surface, forming the basaltic capped mesas evident across much of the Southwest. Large-scale erosion exposed granitic rocks, like Granite Mountain, that had cooled under the surface of the Earth. Meanwhile, the flowing of water across the landscape carved away much of the soft sedimentary stone, creating many of the deep and sometimes quite narrow canyons that are so famous throughout much of the region (D. Gilligan, 2023).

Paleo-American Period (20,000 to 8,000 years ago)

As we move forward in time, away from the geologic formation of the Southwest, we see a landscape that has undergone many changes in its geology and ecology. The Mogollon Highlands of Arizona never experienced glaciation. However, the area was affected by the climate during the Pleistocene Epoch, which lasted from 2.6 million to 12,000 years ago (Pester & Zimmermann, 2022). The lack of glaciation allowed animal species to thrive in the lush ecosystem while much of the continent was covered in ice.

Several Paleoindian archaeological kill sites dating back 13,500 to 10,000 years ago are located along the San Pedro River in Southern Arizona. These sites show evidence that the American Southwest hosted the Paleoindian cultures of the Clovis and Folsom people. These cultures survived by hunting the large ice-age mammals associated with the Pleistocene era,

including Mammoths, Mastodons, and Ground Sloths (Arizona Museum of Natural History, 2023). According to staff at the Arizona State Museum (2023),

A distinctive style of spear point known as a Clovis Point and other stone tools used for butchering are typically associated with these ‘kill sites.’ Among the best known of these kill sites are the Naco and Lehner Sites in the San Pedro River valley near the modern border with Mexico. The Lehner Site, located on the west side of the San Pedro River valley along Mammoth Kill Creek, showed evidence of repeated hunting episodes and a campsite where the hunters probably processed and cooked the meat. The remains of nine mammoths, horse, bison, and tapir were present in the area. (Arizona State Museum, 2023, para. 6)



In addition to the archeological evidence of Clovis and Folsom people in the region, there has recently been evidence discovered of human life in the Tularosa Basin of South-Central New Mexico, a place that is now White Sands National Park. Scientists discovered fossilized human footprints (see Fig. 2) that may have been created between 23,000 and 21,000 years ago in an area that once was the shoreline of a Pleistocene-era lake (U.S. Geological Survey, 2021). While there is little to no evidence of human life in the Mogollon Highlands, based on the proximity to

these aforementioned archeological sites, it can be theorized that Clovis and Folsom people may have inhabited the area during the end of the Pleistocene Epoch.

At this point in history, the Mogollon Highlands was characterized by a generally colder and more moist climate than today, allowing the Boreal species of more Northern latitudes to grow down as low as 6,000 feet in elevation, Mixed Conifer forest to grow between 6,000 and 2,500 ft, and Desert Woodlands to thrive below 2,500 ft. These desert woodlands comprised portions of the Sonoran Grasslands that we see today in Southwestern Arizona and were areas that once supported the Paleoindian Peoples of the time. Due to the warming trends that followed the last glaciation event, species in this region were able to develop and adapt to the warming climate, and in general, these plant and animal species moved higher in elevation and farther North in order to maintain their desirable climate (Gilligan, 2023).

Archaic Period (8,000 to 2,500 years ago)

Following the Pleistocene Ice Age, the Southwestern portion of North America shifted into a warming trend that significantly affected the plant and animal populations of the area and, as a result, changed how humans interacted with the landscape. Paleoindian cultures that thrived on the big game animals associated with the Pleistocene began giving way to bands of nomadic people who were able to start establishing bioregional-specific hunting and gathering practices. During this time, the Arizona landscape looked vastly different than it does today. The Oak and Hickory species that are now seen at higher elevations were still thriving in the lowlands from the post-glacial period, and boreal forests were still able to survive below the Colorado Plateau in areas such as the Mogollon Highlands (Gilligan, 2023).

During this period, the native people had begun adopting their hunting and gathering techniques to account for the shift away from the animals associated with the Pleistocene. The

large spears used to hunt Mammoths and Ground Sloths gave way to smaller projectile points as the hunting techniques shifted focus toward smaller prey such as Rabbits and Deer. It is also essential to consider how these human populations began increasing their dependence on local plant species, such as squash (Arizona State Museum, 2023). These changes in the environment, the technologies used, and the hunting and gathering practices employed are all evidence of how these human populations were changing to adapt to the new landscape surrounding them. As we will see, their growing dependence on local plant species paved the way for the Horticultural Period to take hold between 2,500 and 500 years ago.

Horticultural Period (2,500 to 500 years ago)

The Horticultural period is one of the most well-documented portions of native history within the Desert Southwest. During this time, many groups of native people began working the land, planting crops, and establishing communities in fertile areas where resources were abundant. Many cultures thrived during the Horticultural Period, including but certainly not limited to the Hohokam, Sinagua, Salado, Prescott, Mogollon, and Pueblo or Anasazi peoples (Martin, 2018).



Some of the first people to come to the Southwest were the Anasazi or Ancestral Puebloan peoples of Northern Arizona, New Mexico, and Southern Utah (Anderson, n.d.). These people were known for their dwellings, incredible baskets, and pottery that can still be seen to

this day in places like Canyon De Chelly (see Fig. 3) in North Eastern Arizona (U.S. National Park Service, 2023a). As the Puebloan culture progressed, their dwellings became more advanced, utilizing wood logs as poles and mud and rock as walls, allowing the dwellings to advance to multi-story homes, some of which incorporated ceremonial rooms (Anderson, n.d.). Many of these cultures depended on horticulture for much of their survival. Farming in the floodlands of areas such as the Verde Valley allowed them to harness the abundant water flowing off the Colorado Plateau, while in more arid landscapes, the farming was primarily dependent on rain. Therefore, the Puebloan Culture and many other cultures developed strong religious beliefs, emphasizing their sacred connection to the rain and the life it supported (U.S. National Park Service, 2015). While some cultures depended on rain, and others utilized fresh flowing water, the Hohokam culture began cultivating land by utilizing irrigation canals, which they carved into the land. These systems helped the Hohokam move water around and subsequently increased their ability to grow food in the arid landscapes of Southern Arizona. In addition, the Hohokam people established trading routes that helped connect the many cultures of the time, as seen in the following image.

Evidence shows that the Hohokam people traded with the Prescott Culture (see Fig. 4) in the heart of the Mogollon Highlands. According to Martin (2018), between 1,500 and 725 years ago, the “Prescott culture occupied the area and constructed pertinent settlements” (Martin, 2018, para. 3). To this day there are well-preserved archaeological sites near Watson Lake, in Prescott

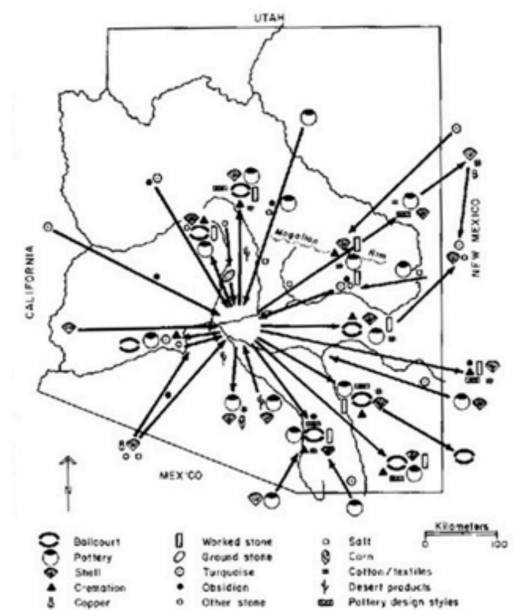


Fig. 4 (Arizona Museum of Natural History, 2022)

Arizona that have pit homes from around 1,000 years ago. Some of these dwellings may have housed as many as 600 occupants at one time. The trade between the Prescott and Hohokam cultures consisted mainly of shell jewelry and ceramics. Additionally, influences of the Hohokam culture can also be seen in the design of the Prescott people's dwellings as well as their projectile points (Martin, 2018).

Two more cultures existed during this time period that interacted primarily with the Mogollon Highlands region. The Mogollon People, resided on the Colorado Plateau and the Mogollon Rim, East of the Verde Valley, while the Southern Sinagua People, lived primarily in the Verde Valley. While these two cultures were distinctly different in their day-to-day lives, they shared many of the bounties that the Mogollon Highlands hold. According to the Verde Valley Archeology Center (n.d.),

The Southern Sinagua's quickly learned about the plants, animals, soils and climate of the Verde Valley and developed a dynamic culture. The rich mineral resources of the Verde Valley, and its central location between the Hohokam to the south and the Ancestral Puebloans to the north, resulted in active trade and exchange of ideas that enriched all the cultures of prehistoric Arizona. (Verde Valley Archeology Center, n.d., para. 6)

While the Southern Sinagua were trading with many cultures and cultivating the land with plants such as the Three Sisters – Corn, Squash, and Beans – in the floodplains of the Verde River, the Mogollon People were still primarily living off the land, hunting and gathering local species of plants and animals (U.S. National Park Service, 2018a). This stark difference in lifestyles created what can be viewed as a separation between these two cultures. The rich history of the Mogollon and Sinagua Peoples, as well as all the other Native Cultures of the area, has and will continue to play a key role in telling the story of this landscape.

European and Euro-American Impact (500 years ago to the present)

After an extensive period of Native American cultures thriving in the Southwest, the Spaniards began moving North, and their impact on the lands was unmistakable (Arizona Museum of Natural History, n.d.). In 1539, two Spanish reconnaissance parties left Mexico, crossing what is now the border of the United States near the Colorado River. Marcos de Niza led the party that ventured into Arizona. The Spanish were exploring to the North, in hopes of finding Native American kingdoms, similar to those of the Aztec and Inca people of Central America. The Spanish had been told stories of vast riches and treasures that were rumored to exist in the Southwest. Marcos de Niza's explorations proved that cities did indeed exist, and Native Americans informed him of many much larger cities. The following year, an expedition led by Francisco Vásquez de Coronado explored deep into Arizona, discovering the Grand Canyon, and most likely making contact with the Mogollon Highlands bioregion. Coronado was unable to find the alleged cities and reported back to Mexico, painting Marcos de Niza as a liar (U.S. National Park Service, n.d.).

Many events happened throughout the next hundred years. Forts and Missions were established, wars broke out, and treaties were signed. Eventually, in 1848, Arizona was claimed by the United States as part of the Treaty of Guadalupe-Hidalgo (National Archives, 2022), and in 1863, President Abraham Lincoln officially designated Arizona as part of the United States, establishing Prescott as the capital city (National Archives, 2019). Throughout this period, much of the Native Population was killed by European and Spanish colonization; eventually, the remaining populations were forced off their lands and onto reservations. An example of this relocation occurred in 1864, when the Navajo People, who had been fighting against the

colonists for years, finally surrendered and began the “Long Walk”; during which they traveled across nearly 300 miles of desert to Fort Sumner in New Mexico (Kim, 2010).

The evidence of Native Culture is still present in the Mogollon Highlands to this day. And the Yavapai-Apache Nation is a direct example of how a long history of widespread inhibition within the Southwest has been shrunk down to virtually nothing, and forced onto reservations that lack many of the necessary ecological functions that the cultures depended on. This brutal history of Native removal from the landscape was followed by an intense period of westward expansion, which led to the decimating of local ecological resources within the region. Farming and ranching practices turned woodlands into prairies, overgrazing led to the destruction of native species, timber harvesting, and deforestation ran rampant, and mining runoff destroyed the health of local watersheds (U.S. Forest Service, n.d.).

The effects of colonization's impact on the Mogollon Highlands can be seen in almost every portion of the landscape today. However, many places still exist where one can feel the deep history of Native Cultures inhabitants on the land (see Fig. 5) and perhaps even gain



NPS Photo by Nicholas Goodman

Fig. 5 (U.S. National Park Service, 2023c)

respect and admiration for the ways in which Native Cultures created synergistic connections that not only supported their livelihoods but also maintained a sustainable life cycle that respected and honored the Earth and all it has to offer.

Conclusion

Understanding the history of place, allows us to more intimately interact within the space. Hopefully, through the creation of this connection, we are able to gain a sense of responsibility in protecting the place, and the history, cultures, species, and communities that make it so special. The Mogollon Highlands has, and for the foreseeable future, will continue to be a biological hotspot and point of transition between the Sonoran Desert and the Colorado Plateau that captures the essence of change and diversity through its varying ecosystems and topography, to its vast number of Native Cultures, and the dramatic changes the land has seen since the arrival of Colonialism. The area is filled with a storied history of change and transition that dates back to the formation of North America and continues through the present day.

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