

The Four Hills pueblos and the Hot Housing Market of the Fourteenth Century

Rusty Goetz

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No, I am not suggesting that we rename our neighborhood. There really is, or I should say was, a “Four Hills Pueblo”, in Tijeras Canyon. The recent opening of the Singing Arrow Community Center and Archaeological Site and the CABQ development plan for the Tijeras Creek Cultural Corridor have drawn attention to a little-known phase of pueblo culture and Albuquerque Basin human settlement, now called the Coalition Period (1200-1299 CE) and the early Classic Period (1315-1600 CE). It is not clear why archaeologists have a time gap in their “period” naming convention, but possibly it is because there is an overlap in artifact styles between these periods. Dates mentioned within this article are based on dendrology (tree ring dating), pottery style correlations, and various radioactive dating and analysis techniques.

Archaeologists have named our area the “Eastern Pueblo Region”. This area includes the central Rio Grande Valley and its tributaries as well as the Sandia and Manzano Mountains. Settlement in the Tijeras Canyon area appears to have begun around 1100 CE, when isolated pit dwellings and small farms were built along Tijeras Creek, and abruptly ended in 1400-1425 CE, when relatively large multistory adobe pueblos were abandoned. One 1992 publication reported that 36 occupation sites, dating from this period, have been found in Tijeras Canyon, only eight of which have been described in detail. This article focuses on the late thirteenth through the fourteenth centuries, when a virtual real estate bubble developed and large pueblo communities were built in the Tijeras Canyon Creek drainage area and the nearby arroyos.

Background history

To set the stage for the settlement of Tijeras Canyon pueblos we need to look at a series of events that triggered a regional shift in population across the American Southwest. Currently archaeologists believe that the original pueblo builders of the Chaco Canyon pueblos in the Four Corners region lived in that area approximately 850-1250 CE. For reasons not fully understood, they abandoned the area. (Best guesses include drought, deforestation of the region, failure of crops, some sort of social collapse, or a complex combination of these events.) Current historical research suggests that the Chaco population drifted away to resettle in the Mesa Verde area, the Casas Grande area, and along the Rio Grande, Animas, and Colorado river valleys and their tributaries.

The Coalition Period describes a cultural upheaval when most of the large pueblo centers (including Mesa Verde, central western New Mexico, the Gila settlements, and some of the pueblos in the western Estancia Basin) disbanded and their populations disbursed to other areas. Recent reinterpretations of excavations made in the larger pueblos of the Tijeras Creek drainage area strongly suggest that people from the Zuni and Acoma areas, the pueblos in the Estancia Valley, and from the Socorro area came to join Albuquerque Basin people in building new pueblos in the central Rio Grande Valley and in Tijeras Canyon and the East Mountain area. The following Classic Period describes changes in pottery styles and lifestyles within the pueblos of the American Southwest up to the advent of the Spanish colonial period.

For decades, it was assumed that the pueblo population in the central Rio Grande Region was small when compared with the populations of other regions of the Southwest during the early pueblo periods. Now, it appears that assumption was incorrect, with the error due to differences in building materials, which resulted in differing states of preservation of the building sites. The Chaco, Mesa Verde, Valles, and Gila builders all had ready access to easily worked building stone (volcanic tuff that could easily cut, and naturally fractured sandstone and limestone rock). This allowed them to be able to build multistory

complexes that have endured for centuries. In contrast, the pueblos of the central Rio Grande Region had little access to good quality building stone. They had to resort to building with mud-derived adobe that quickly collapsed and eroded once maintenance ceased, leaving little obvious record of their existence. It takes expert eyes to recognize the remaining low “melted chocolate ice cream” mounds of adobe and rock rubble as remnants of prehistoric pueblo sites.

Besides natural erosion, rapid urban growth and a lack of legal protection have resulted in the destruction or burial of innumerable prehistoric adobe sites in our area. However, since the mid-1980's careful research has begun to reveal how rich and vibrant life was in this area.

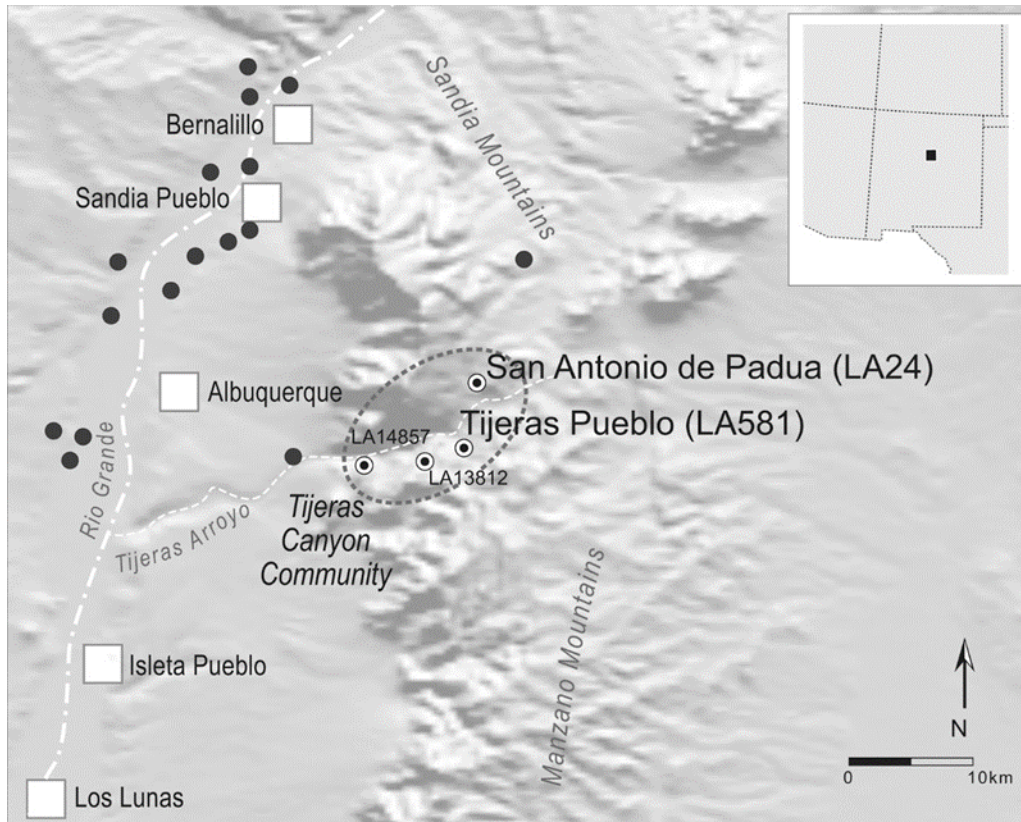
Rapid development of Tijeras Canyon and its watershed areas 1290-1400 CE

Two factors may have combined to drive rapid settlement of the Canyon: population growth and moderating climate, which made the previously unwelcoming higher canyons more tenable. During this time, substantial population growth along the central Rio Grande Valley occurred as more people migrated into the region. This resulted in an increase in the number and size of pueblo sites and the increasing development of year-round settlements, as opposed to those built only for seasonal usage. The pressure to produce more crops (corn and squash primarily) and to develop more living space may have driven these communities to send out explorers to develop satellite farm and pueblo sites.¹

The American Southwest remained in a drought cycle until the early half of the thirteenth century but following the “great drought” of 1276-1299 CE, the climate appears to have become more benign. Temperatures were more stable, and a period of above average precipitation began and continued until at least until 1425 CE.

Tijeras Canyon, with its seasonal creek and nearly perennial seeps and springs, was an obvious place to start. Unfortunately, even though the prevailing wetter conditions and milder temperature swings of the late thirteen century through the fourteenth century might have encouraged growing crops, the rugged terrain and lack of good farming soils within the Canyon did not. It is possible that other aspects of Tijeras Canyon may have increased its attractiveness for year-round settlements. Firstly, the Canyon was a known migratory path for all types of game animals, and, secondly, it was the pathway linking the western High Plains peoples with the Middle Rio Grande pueblo peoples. Around the beginning of the fourteenth century, settlement construction in the Tijeras Creek watershed began to accelerate.

¹Even though the middle Rio Grande Valley pueblos grew larger, and more land was put into crops, recall that the Rio Grande was still a very wild river and seasonal flooding could cause it to shift its riverbed back and forth by miles at a time. Many pueblo sites were destroyed and crops were lost. As an example, one of the earlier sites of the Sandia Pueblo was built on the west side of the Rio Grande. A major flooding event caused the meander loop of the river to shift over a mile to the west leaving the pueblo on the east side of the river and destroying the crops planted along the river banks and bars. Over time, most of the larger pueblos relocated their homes to the higher mesas along the river while continuing to risk planting their crops on the lower surfaces, to be ensured of water. Unfortunately, in the late sixteenth century, the newly arriving colonial settlers failed to notice this difference in elevation between the existing pueblos dwellings and their crop lands. The colonists located their homes directly on the Rio Grande floodplain, where they were frequently flooded.



Habicht-Mauche and Eckert (2021) * Used with permission from Cambridge University Press.

For the following discussion, please refer to the map above which is a shaded relief map of the greater Tijeras Canyon area. The white squares represent the current locations of the major cities and pueblos; the black dots represent approximate locations of prehistoric pueblos; and the white dots with black centers represent the approximate locations of the Tijeras Canyon pueblos of the Coalition and early Classic Periods, which are mentioned in the 2021 paper by Habicht-Mauche and Eckert.

From west to east, the eight described Coalition/Early Classic Period Tijeras Canyon pueblos are:

- The Singing Arrow Community Center Archaeology Site (the black dot just above the label “Tijeras Canyon Community”) where the partially excavated prehistoric pueblo lies buried beneath the early colonial ruins of Rancho de Carnue. The new Singing Arrow Community Center has included an exhibit of pottery, tools, and animal bones found during the excavation of both sites. The exhibit is still under construction by the Maxwell Museum of Anthropology of the University of New Mexico.
- The Four Hills Pueblo site (LA14857) lies close to the springs along the Tijeras Creek within the CABQ Route 66 Open Space block. It has not yet been formally excavated and its size and construction have not been described in publicly available literature. The pueblo is probably located in the vicinity of several grinding slicks carved a few inches deep into the tops of large granite boulders along the present day creek bed. These grinding slicks were used like metates for food preparation and the depth of wear in the granite suggests long term use of the area.
- Carnuel Pueblo (LA13812) is now buried beneath the rebuilt Santo Nino Catholic Church, the cemetery, private buildings, and roads in western Carnuel. The site has been strongly disturbed by multiple generations of construction. Archaeological excavations have found trash middens,

pottery sherds, and tools, but no pueblo buildings have been found preserved at the Carnuel site.

- Two sites at Deadman's Curve: the Coconito Pueblo (LA10794) and the Dinosaur Rock site. The Conocito Pueblo is located a few miles east of Carnuel on the north side of Tijeras Creek and south of Dead Man's Curve on old Route 66. This site was damaged in earlier road construction and was excavated and reburied by the University of New Mexico in 1985, when NMDOT rebuilt the highway curve. The remaining portions of the pueblo indicate that a one and two-story adobe building of 20-25 rooms, including a rectangular kiva, was built around a central rectangular plaza. Several pit dwellings of a concurrent age and of a somewhat younger age were also found at the site. The Dinosaur Rock site is approximately one and a half miles to the west and consists of a block of six adobe rooms (five in a line with the sixth set at a right angle) and several storage structures.
- The Tijeras Pueblo (LA581) is located at the US Forest Ranger's station on south NM 337 (old NM 14 South) in Tijeras Village. It was excavated several times by the US Forest Service and the University of New Mexico in the 1970's -1980's. It is the site of multiple building blocks that include over 130 rooms and a large freestanding circular kiva. The largest block of rooms was one to two stories tall and was built around a rectangular plaza that was open to the east. A rectangular kiva was found within the main building complex. Other smaller building blocks and several pit dwellings were found in the immediate area. Excavation found pottery, beads, tools, animal bones, and seashells. A few human burials were also found. Modern descendants of this pueblo live at Sandia and Isleta Pueblos and consider Tijeras Pueblo, with a place name of "Maud'-hued" (Seashell Place), to be an ancestral village where their inherited culture originated. Tijeras Pueblo is held to be property of the Isleta Pueblo and, with their permission, is the most deeply studied pueblo in the region. Although it is largely reburied, it is now preserved by the US Forest Service as a free educational park with well-marked walking trails and interpretive signs. There is also a museum but it is currently closed.
- The San Antonio de Padua Pueblo (LA24) in San Antonio was first described in 1924 when the NM Highway Department built NM 14 North and accidentally exhumed several human burials. The site was first formally described in 1930. It was excavated in 1975, and again was partially excavated by the Museum of New Mexico, Office of Archaeological Studies, in 1992, when NM 14 was widened. The pueblo is now buried beneath the Catholic Mission Church, NM 14 access roads, several private residences, and some fallow fields. This pueblo is located about a half-mile south and west of a bend in the San Antonio Arroyo, a major tributary to Tijeras Creek, which contains several perennial springs. A site survey made in 1972 suggested that the pueblo covered an area of more than 600 X 1320 feet and contained at least 30 rectangular rooms of differing ages and construction styles. Measurements made during the 1992 survey proved the site is much larger. The full areal extent of this pueblo is unknown, but it is one of the larger pueblos in the Tijeras Creek drainage area. Test pits dug by researchers in 1992 found buried adobe walls, pottery, tools made of stone, bone, and shell, as well as portions of human burials.
- The Paa-Ko Pueblo (the black dot at the end of the "Sandia Mountains" label) should also be included in this grouping. Although it is located outside the Tijeras Creek drainage area, and near Galisteo Creek, it is close by, and is of the same age and style of construction as the pueblos of Tijeras Canyon. Beginning in the 1930's, this site was partially excavated multiple times by both universities and pot hunters. Two large multistory building blocks were found containing over 200 hundred rooms, multiple plazas, and both round and square kivas. Again pottery, tools, animal bones, and human burials were found. Although it is no longer visible, the pueblo is located in a fenced field on the east side of NM 14, next to San Pedro Spring, across from and just south of the entrances to the Paa-Ko Community. The site is now reburied and protected by the University of New Mexico.

All of the excavated pueblo sites were reburied to preserve the fragile adobe structures.

Location selection and construction techniques of the Tijeras Canyon pueblos

The seven Tijeras Canyon pueblos described in this article are spaced one-and-a-half to two miles apart. Paa-ko Pueblo, on Galisteo Creek, is located about six miles farther north of the San Antonio de Padua Pueblo. All these pueblos were built and occupied at more or less the same time and had many features in common. All are located very close to perennial or permanent water sources, and all are on relatively flat land, very near soil shelves that could be farmed. All were free standing and built of adobe with limited use of rock rubble and wood. All appear to have had roofs made of brush that were probably sealed with a mud plaster. Of the sites that had been excavated in more detail, we find that all of these were occupied for fairly long periods, probably for years or decades, but were periodically abandoned and then were reoccupied and modified. All had multiple styles of construction used concurrently, and almost all had kivas. The larger pueblos had multiple styles of kivas and plazas. Two types of dwelling structures were built in Tijeras Canyon at this time: pit houses/storage rooms and free-standing adobe room blocks.

Pit houses and pit storage rooms were built by digging a circular pit a couple of feet into the ground then standing a tall post in the center. Sometimes, a low wall of adobe or rock rubble would be built on the edge of the pit to add height. Brush was then stacked from the pit edge to the central pole and probably sealed with mud. A single entrance was left and, if it had been built to be a dwelling, a lower air vent was dug for the hearth and a smoke hole was left near the pole.

Free standing blocks of rectangular rooms were built mostly by two methods that are still used today in adobe construction: adobe and jacal; and puddled adobe. Construction using adobe and jacal is similar to wattle and daub construction. A basal foundation of adobe and rubble was laid and then slender vertical wooden poles (jacal) were planted, spaced apart, and tied together. The intervening spaces were then filled with brush and rubble. Finally, a plaster of stiff adobe mud was applied inside and out. The inner walls were sometimes coated with a finer adobe plaster finish and were occasionally decorated. When the builders chose to construct puddled adobe walls, a rough foundation was laid defining where the wall was to be built. Then a course of adobe rubble and rock pieces bonded with mud was laid down - usually only foot or two in thickness and width. At the end of this cycle, a thinner slurry of adobe mud was poured over the rubble course, smoothed out, and allowed to dry. Once the puddled adobe dried, the process was repeated, as the next course, until the intended height was reached. Again, a finer adobe plaster was sometimes put on the interior walls.

In both of these construction techniques for building room blocks, the roofs were probably brush that was sealed and strengthened with mud. In multi-storied buildings, the lower floor might be filled with trash and rubble to support the upper floors. Floors were usually stamped earth but occasionally stone pavements that were plastered over were used. Generally, each more or less rectangular room had a single entrance, a hearth (sometimes of stone) and a vent hole in the roof. In the larger structures, the entrances usually faced inwards toward a plaza. In all of these construction styles, the structures withstood weathering as long as frequent maintenance and repairs were made.

Evidence for mixed pueblo groups coalescing to form new types of communities in the Tijeras Creek watershed area

Research articles on these foothills/canyon settlements written prior to the 1980's suggest that most of these small pueblos were seasonal satellite settlements whose purpose was to raise additional crops for the larger pueblos along the Rio Grande Valley. In the Tijeras Creek watershed, the pit houses and very small adobe blocks were built and used, almost like today's RV homes, as temporary dwellings while the crops were planted, matured and were harvested. Later during the better climatic intervals, the larger

multiroom pueblos were established and occupied for longer stretches of time as more crops were able to be produced. It was also argued that the larger eastern Tijeras Canyon pueblos served primarily as gateways for trade with the High Plains peoples.

More detailed excavation and reanalysis of the material recovered from older surveys has changed that model. It is now recognized that, during what the archaeologists have called the “Long Century” (1290-1425 CE), most of these pueblos were occupied year-round for a decade or decades at a time and were largely self-sufficient. The larger pueblos served as important cultural synergy centers where people from many different pueblo groups came to live together.

New dating techniques and research show that all three adobe building techniques were used simultaneously at many of the pueblos. This suggests that personal building preferences, rather than a separation in time, controlled what and how dwellings were built. Frequent remodeling and repairs of walls and floors suggest long-term usage of the pueblos and pit houses. In the larger pueblos, multiple blocks of buildings with different construction styles and differently oriented/shaped plazas, along with the concurrent construction of isolated dwellings, suggest multiple family groups from different backgrounds resided in one community. The presence of kivas argues a commitment of resources outside mere grocery delivery to the larger valley pueblos. The variations in kiva construction within a given pueblo complex again argue for families with different backgrounds living together.

There was abundant trade throughout the American Southwest at this time. Turquoise, copper, lead, salt, shells, and pottery were traded throughout the region. Trade goods from the Gulf of California and from central Texas have been identified in Tijeras Canyon pueblos. However, up until very recently, the migration of entire community populations has not been discussed widely. Habicht-Mauche and Eckert’s 2021 paper presents evidence for a new and different conclusion on the movement of goods and people during the Coalition and early Classic Periods.

Using Neutron Activation Analysis and petrographic techniques, Habicht-Mauche and Eckert examined pottery sherds from the Tijeras Pueblo, beginning with those found in the earliest level (1290 CE) and through those marking the abandonment of the Pueblo very close to 1425 CE. Their findings were startling. Pottery that had previously been assumed to have been made in the western pueblos and traded to the Tijeras Pueblo was in fact made from local materials. The workmanship and decoration execution are virtually indistinguishable from examples recovered in the western pueblos. Their conclusion is that, not only did trade goods move between far flung communities, but groups of people also travelled long distances as well. In the early fourteenth century, just as the Tijeras Canyon pueblos were being founded, the western pueblos in the Zuni/Acoma/Quemado (Marianna Mesa) area were being rapidly, and possibly violently, depopulated. These western pueblo people with advanced pottery-making skills migrated to the Albuquerque area and some of them joined the Tijeras Pueblo as members of the community, bringing their skills and culture with them.

Life in the Tijeras Canyon pueblos

Daily life in these pueblos required a lot of work. The adobe used in the pueblo construction had to be renewed frequently and there is evidence of an ongoing war with rats that tunneled into the walls and floors in many of the sites. Crops raised in the poor soils of Tijeras watershed had to be hand tended and watered. The elevation of the canyon and the climate, though better than the previous century, were not conducive for good yields of corn. Drought cycles, though shorter and less intense than previously, were still common and may have triggered the periodic abandonment of some of the sites. Diet was supplemented by hunting and trapping the fairly abundant game and by raising domesticated turkeys. Turkeys were important, not only for their meat and eggs, but, additionally, their bones were used to make tools and their feathers were woven into warm blankets.

There is ample evidence that the residents of these pueblos took time to enjoy life and beauty. They make both utilitarian grey pottery and larger beautifully decorated white and black or red and black pottery vessels that they may have been used for ceremonies or feasting. They also smelted copper and made jewelry from shells, stone, and bone. There are indications that looms were set up inside some of the rooms and that trade was a part of daily life. The presence of decorated kivas tells us that religion was also an important part of life in these communities.

Why were all of the Tijeras Canyon and East Mountain pueblos abruptly abandoned between 1400 and 1425 CE?

Previously, the common answer, up until the mid-1980's, was that the arrival of the Spanish in New Mexico both displaced the pueblo populations and introduced diseases that were devastating to the native population. The glaring error in this assumption is that Coronado and his forces did not arrive in the central Rio Grande area until 1540 CE, more than one hundred years after the Tijeras and East Mountain pueblos had been abandoned.

Newer data suggest several events may have come together to cause the demise of the Tijeras Canyon and East Mountain pueblos. First, climate change, while regional climate had remained mostly stable until about 1425 CE, aridity appears to have increased towards the end of this cycle and, from 1450 to 1600 CE, the area was subject to drastic climate fluctuations and a further general decrease in moisture. Second, increasing aridity, combined with nutrient exhaustion of the already poor soils by long term farming of the same small patches, probably contributed to lessening yields and crop failures. Analysis of burials exhumed at Paa-Ko Pueblo demonstrated an unusually high frequency of osteoporosis, usually caused by vitamin and mineral deficiencies. Third, continued hunting could have reduced the number and variety of game animals available in the area. A reduced diet may have weakened the population and allowed indigenous diseases to spread more rapidly.

The telling blow may have been war. Beginning around 1400 CE, a major migration of non-pueblo tribes arrived in the region. These were the Athabasca tribes of the Dine and their cousins, the Apache, who had migrated from northwestern Canada. Known as fierce warriors, they raided pueblos all across northern and central New Mexico. At the same time, raiding parties of Comanche from the High Plains began to attack the eastern pueblos. The possibly weakened populations of the Tijeras Canyon pueblos may not have been able to defend their homes and thus, they abandoned the Canyon for the safety of the larger and more defensible pueblos of the Rio Grande Valley.

All the Tijeras Canyon pueblos and most of the East Mountain pueblos were abandoned by their builders by 1425 CE. The region was not reoccupied until the end of the sixteenth century when colonial groups began to build new communities over many of the abandoned pueblo sites. These new residents took advantage of the same resources originally identified by the builders of the Tijeras Canyon pueblos and ultimately established many of today's communities in the same locations as the earlier pueblos.

Suggested Reading

Coalescence and the Spread of Glaze-Painted Pottery in the Central Rio Grande: The View from Tijeras Pueblo (LA581), New Mexico, by Judith A. Habicht-Mauché and Suzanne L. Eckert, *American Antiquity* 86(4), 2021, pp. 752–772

ANCIENT PUEBLITOS OF THE SANDIA FOOTHILLS by Hayward H. Franklin, Maxwell Museum Technical Series No. 36, 2021, UNM, 42 pages.

TESTING REPORT AND DATA RECOVERY PLAN FOR SAN ANTONIO DE PADUA, JA 24, BERNALILLO COUNTY, NEW MEXICO by Nancy J. Akins, UNM Archaeology Notes 89, Santa Fe, 1992, 36 pages.

ARCHAEOLOGICAL INVESTIGATIONS AT LA 15260; THE COORS ROAD SITE, BERNALILLO COUNTY, NEW MEXICO, by Richard B. Sullivan and Nancy J. Aikins, Museum of New Mexico Office of Archaeological Studies, Archaeology Notes 147, 1994, 169 pages.

“The Pueblo off the Highway”, by Michael Farrell Smith, in East Mountain Living, Fall/Winter 2021, pp. 8-11.