Jornada Research Institute

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The Jornada Research Institute (JRI) has as its mission the study of the archaeological, ethnohistoric, and natural resources of the northern Chihuahuan Desert of Arizona, New Mexico, the Trans Pecos west and adjacent regions. JRI is committed to the protection and preservation of these resources so that current and future generations may benefit from their research and educational values. JRI is represented by a group of talented researchers from diverse backgrounds, allowing the institute to focus on multi-disciplinary approaches while sharing and engaging the public through a variety of educational and training opportunities.

The old post office in Yeso.

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Did you know…

Italy's antiquities laws, unlike here in the United States, apply to private land, meaning that even if an archaeological find is discovered on privately owned property, the state generally has the right to claim it as cultural heritage, and strict regulations govern its excavation, ownership, and potential export. Recently, Italian authorities announced the seizure of artifacts from an illegal excavation on private land. Using a suite of techniques including black market website searches, drone technology and phone taps, they located an excavation site next to the property of a local businessman who had access to earthmoving equipment. When law enforcement visited the site, they found "found two sarcophagi, believed to be of two Etruscan princesses, one still with the skeleton inside, and a burial trousseau complete with urns with battle and hunting scenes, perfume jars and a comb made from bone." The site is located in the central Umbria region. Two people are being investigated for suspected theft of urns, sarcophagi and other artifacts worth 8 million euros ($8.5 million) intended for sale on the black market.

Source: Albuquerque Journal, November 20th, 2024.


"Amazing! The mummified remains of a prehistoric cave-painter—still clutching his brush! … Seems he made an enemy, though."

Research Updates

Investigations Suspended at the Cornelius Locus in Ruidoso until Spring

By David Greenwald

Over the weekend of November 9 and 10, we covered the remaining area of on-going excavations at LA 199588, the Cornelius Locus. Those who have been following and participating in our excavations will know that we are working in a burned and collapsed wattle and daub pueblo represented by two or more stories of rooms. Surface expressions of the site are non-existent due to the site being buried by about 1 meter of alluvium other than a few artifacts brought to the surface by rodents. Stone for construction is not available in Cree Meadow, where the site is situated at the north end of the broad wetland where deep alluvium has been deposited for millennia. Wattle and daub walls would not provide support for the pueblo; therefore, upright posts were set with horizontal beams tying them together with the posts to provide the structural support of the pueblo and the beams supported the floors and roof. We frequently find remnants of the lower portion of these posts that did not burn because the upper level(s) collapsed and prevent the lower 25 to 30 cm above the floor and that below the floor from burning.

Figure 1. Cornelius Locus Volunteers (l-r: Dean Hood, Mary Taylor, Delton Estes, Kathleen Cotton, Liz Smith, Quianz Echavia, Lisa Sparks. Note depth of excavations (ladder is setting on lower floor level).

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Cornelius Locus, continued.

Thus far, the ground floor appears to have been used exclusively for storage where we have found a second turkey pen this season. Recognition of the second turkey pen would not have been possible had the first one not been equipped with large pieces of ceramic vessels that were likely used for water and feed for the confined turkey, plus several gizzard stones and an assortment of turkey bones. The shallow pit was likely produced by the turkey while scratching for food. The second pen was more enigmatic but did contain a large portion of a ceramic vessel. Unfortunately, we have had to stop excavations for the season before fully excavating the second turkey pen. We may find more contents that support our interpretation when we continue next season.

The second story of the pueblo collapsed (pancaked) upon the ground floor. It was used primarily as living quarters. Items of personal adornment, such as shell pendants, beads and rings, have been found. Small quartz crystals have also been found on the floor of these second story rooms. Hearths, typically heavily burned and possessing a bright orange oxidized color, have been found largely intact due the high clay content of matrix used for construction of the pueblo. Unlike sequential occupation surfaces, the upper floor varies in elevation, with ash, artifacts and burned construction materials undulating as a result of the collapse of the structure.

Figure 2. Remnant of a wall (oriented diagonally) with various pits. Bottom pit contained a segment of an unburned post with a support slab under the post (visible). The "collars" are remnants of roof/upper floor that protected the unburned wood. Upper right is the hearth shown in the next images.

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Cornelius Locus, continued.

The roof served as an area of intense activities. Here, food was prepared (numerous complete manos and metates have been recovered), cooked (several hearths with extensive ash deposits and examples of fire-dogs or trivets for supporting cooking pots have been found), and nearly complete ceramic containers and others fragmented (lying on the roof surface or above the roof beams). Butchering also appears to have taken place on the roof, represented by bones of various large mammals. As with the second story, the roof surface collapsed (pancaked) upon the lower floor level, undulating perhaps because the lower portions of support posts and wattle and daub walls created depressions inside rooms and elevated areas above the walls and posts. One, nearly complete, fire box (lined with upright slabs and a thick basal slab) was found on the roof, exhibiting a third type of thermal feature used on the roof. Again, due to the high content of clay in the construction materials, large portions of the roof surrounding the hearths and fire box remained intact when the roof collapsed, covering the second story floor. The artifact density associated with the roof surface is extremely high including bone awls and needles, gravers, bifacial tools for cutting, cores and hammerstones, polishing stones perhaps used in pottery manufacturing, anvil stones, paint palettes with pigment adhering, shaft straighteners, a variety of arrow points and possibly small dart points, and thousands of pieces of high-quality flaked stone debitage resulting from tool production. We have not identified the stone source used for tool production but it must be nearby given the quantity of items found.

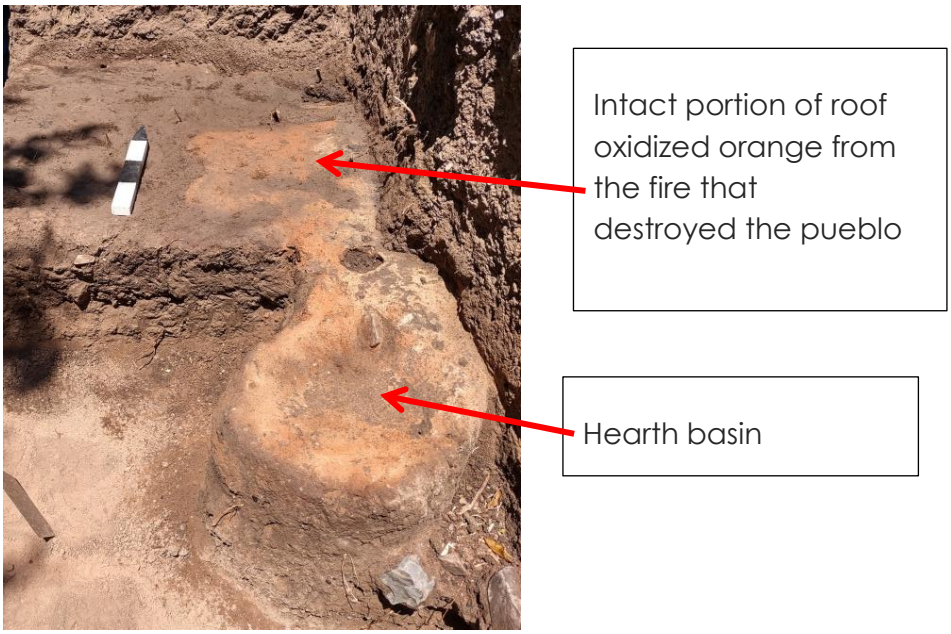

Figure 3. Collapsed segment of roof with intact hearth. Note large core exposed below the hearth.

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Cornelius Locus, continued.

The Cornelius Locus represents just one large roomblock of the much more extensive site that extends across the street and under the school buildings. In the summer of 2023, much of the school's parking lots were improved. This resulted in the asphalt and base course being completely removed and the undisturbed deposits graded producing a clean surface that revealed numerous cultural stains, some quite large (12 to 16 m wide and 30 to 40 m long) likely representing additional roomblocks. Investigations of the Cornelius Locus have identified a type of architecture not previously described in the Sierra Blanca Region perhaps because wattle and daub construction does not present much of a footprint on the surface like masonry pueblos or because it was deeply buried by alluvium. The site appears to have been occupied on a year-round basis and would have been an ideal location for growing maize even at an elevation where the growing season would have been condensed. We have found maize kernels and a tuber that resembles a small potato in the excavations. The roomblock appears to have been destroyed by a catastrophic fire, but we don't know the cause of the fire. Was it a result of a natural disaster, an accident, or does it represent aggression, raiding, or warfare? We hope to address these questions and many others during our final season at Cornelius in 2025.

During the following months, we will return to Creekside Village and continue our investigations of the much earlier pithouse village and irrigation community. Creekside Village represents a well-preserved Mesilla phase site dating from about AD 600 – 900. It includes a great kiva, the first documented in the Tularosa Basin that dates to this time period. We offer tours to the site for those who wish to see the site up close and enjoy hiking in Tularosa Canyon.

We gladly receive volunteers who wish to join in the excavations and perhaps add to your excavation experience. Excavations will proceed as weather allows, but in the Tularosa Basin, we are able to work throughout the remaining fall, winter and early spring months. Contact Dave Greenwald (dgreenwald@tularosa.net) for information on joining our investigations. No previous experience is required.

Research Updates, continued.

JRI and Texas State University team up to conduct Geoarchaeological and Palaeoecological Research

By: S. Krause, M. White, C. Huch

Starting the summer of 2023 and continuing this summer, JRI associates and graduate students at Texas State University have collaborated on projects that focus on geoarchaeology and paleoenvironmental change in the Tularosa Basin and surrounding regions. The Texas State team, based in the Department of Geography and Environmental Studies (TXST GEO), uses proxy data (such as fossil pollen and plant cells, isotopes, and physical/chemical properties) found in soils and sediments to better understand how environments fluctuated in the past, and how human interaction might have contributed to these changes. In addition, the TXST GEO team uses dendrochronology to complement historical archaeology in the Sacramento Mountains. Dendrochronological research uses annual growth rings of a tree to define its age and examine growth patterns. In addition, this method can be used to understand past environmental conditions and study disturbances such as logging, fires, and insect outbreaks.

Thanks to JRI's collaboration, these students are gaining valuable training opportunities to help kickstart their careers, as they contribute new data and analyses to the growing body of knowledge regarding past environments in the region. Additionally, these projects are examples of JRI meeting its mission objectives. Two projects are currently underway via this collaboration.

The first study is led by Marie White (PhD student at TXST GEO) who is working with Samantha Krause, David Greenwald, and Vance Holliday. Marie is studying the many complex sediment layers in the Tularosa Creek canyon below the Creekside Village Site (Figure 1).

Figure 1. From left to right: David Rachel, Vance Holliday, Jason Windingstad, Bruce Phillips, Marie White, David Greenwald, and Samantha Krause at Creekside Village. *(Continued on Page 7)*.

Research Updates, continued.

Marie is asking the following research questions with this project:
1. What were the various hydroclimatic and ecological conditions at Tularosa Creek throughout the Holocene?
2. Can microbotanical analysis (charcoal, phytoliths) show the onset of agricultural activity and land management methods?
In addition, her goal is to synthesize this project with the ongoing work led by David Greenwald and countless JRI members and volunteers that is occurring at Creekside Village. So far, Marie has collected over 100 sediment samples from a stratigraphic section in the Tularosa Canyon, and is building on the previous work conducted by Vance Holliday and David Greenwald. The stratigraphy of the canyon reveals that until recently, many layers of alluvium were building up over time, and recent erosion has exposed these previously buried sequences. She has already conducted XRF and grain size analysis, and dated even more charcoal throughout the profile, providing good chronological control. She will begin collecting a phytolith reference collection this summer in the Tularosa Basin and surrounding areas so that she can begin processing samples for phytolith extraction and analysis this fall. Phytoliths are microscopic particles of silica that form in plant tissues and are left behind in sediments after plants die. Marie will use phytoliths to detect the types of plants that grew in the area at different times in the past, hopefully linking these plant communities with human use of the landscape.

Figure 2 shows Marie's ongoing environmental reconstruction, in which she is using elemental weathering indices from XRF data to understand when the environment was more or less stable in the past. In this case, higher values equal more chemical weathering, which could indicate more standing water and productive wetlands in the area.

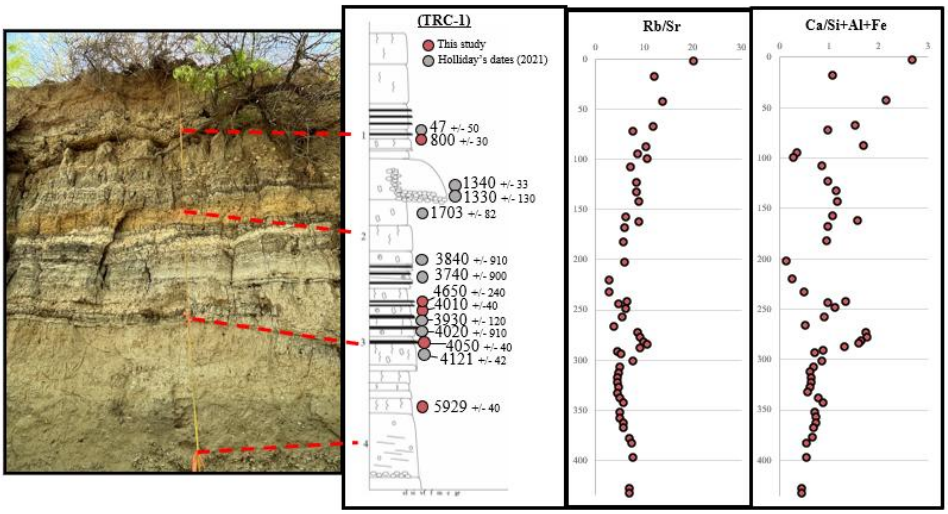

Figure 2. An example of Marie White's research. A final, edited version of this analysis will be published in a peer reviewed journal before she completes her dissertation research in the next two years.

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Research Updates, continued.

The second TXST GEO project in the area is being conducted by MS student Cameron Huch, who is working with Samantha Krause and her supervisor Yanan (Nancy) Li, who is a dendrochronologist. Cameron, along with a team of undergraduate and graduate students, has recently finished the analysis phase of a dendrochronology survey that she conducted along the historic track of the Southwest Lumber Company Railroad in Hubbell Canyon in the Lincoln National Forest (Figure 3).

Figure 3. The dendrochronology team during the summer 2023 field season.(Back row, from left to right: Bob Huch, Emiliano Lopez, Marie White, Taraja Oliver, Sam Krause) (front row, from left to right: Yanan Li, Cameron Huch, Sarah Schultz)

The Southwest Lumber Company was one of the five logging companies that logged the forest from 1920-1946 and was considered the longest lived and largest lumber operation in the Sacramento Mountains. This company first bought the rights to the Sacramento Mountain Company in 1920. As early as 1921, the company continued to expand their logging railroads, constructing many new railroads, as well as the Camp Marcia homestead, and purchased additional lands from the Alamogordo Lumber Company. The company slowed production to an order-by-order basis in the 1930s, before finally ceasing operations in 1946. Cameron and her team selected Hubbell Canyon in the Lincoln National Forest as a key location to conduct dendrochronology research, as the area has previously been surveyed by archaeologists as a site associated with the Southwest Lumber Company. Artifacts in the area include railroad ties, log chutes, and collapsed trestles. Cameron's research questions were as follows:

1. How does the distribution of tree ages in Hubble Canyon reflect the logging methodologies implemented by the Southwest Logging Company?

Research Updates, continued.

2. Was landscape topography (elevation, slope, or distance to railroad) a deterrence from logging trees in the Lincoln National Forest?

All in all, Cameron and her team collected tree core samples from 106 trees (Figure 3). The oldest tree was a 284-year-old Douglas Fir that germinated in 1739. Her research suggests that the area was not entirely clear cut, but clustering of even ages occurred throughout the study area. The distribution of tree ages, along with the historical timeline, indicates that a significant logging occurred in Hubble Canyon between 1920 and 1923. In addition, there is no clear evidence that lumber harvesters intentionally avoided certain areas based on the topographic parameters (slope, elevation, distance from the railroad). Cameron and her team hope that this kind of research can continue in the Lincoln National Forest to better understand the history of use and to answer even more questions about the historic archaeological sites in the region.

Figure 3. An example of the tree coring process, as well as selected tree core samples from the study. Photos courtesy of C. Huch, published in her upcoming thesis.

Petroglyph Monitoring

Petroglyph Monitoring at Petroglyph National Monument

By Jeffery Hanson

Between 2021and 2023 we completed a condition assessment survey of a sample of 670 petroglyphs within seventy-five 100 meter transects within the six units of Petroglyph National Monument. The goal of that research was to document natural and human-caused damage, determine condition values and integrity, and to create a condition assessment baseline database that would form the foundation of a monitoring plan to assess future conditions of the panels. The plan would prioritize periodic revisitation of subunits along the established trails, where petroglyphs are, for the most part, easily accessible to trail foot traffic. This is in line with one of the major findings of the baseline survey, namely that up-close, manual scratching (including graffiti) with hand-held metal tools of accessible and high visibility panels constituted the most significant risk. This plan is to periodically relocate petroglyphs documented during the survey and record any new damage (Figure 1). This plan was implemented during the spring of 2024. It included 265 panels from Piedras Marcadas Canyon and Boca Negra Canyon. Of these, only one panel showed signs of new damage, and this damage was scratches to the panel. Currently, monitoring is being undertaken in Rinconada Canyon. In the Spring of 2025, panels within the Mesa Prieta unit of the Monument will be examined.

Figure 1. PNM volunteers Miguel Quintana and Jane Baechle relocate petroglyph panels from the 2021-2023 condition assessment survey. Once relocated, panels were visually compared with earlier photos to assess any new natural or human-caused damage.