La Vista de la Frontera

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From the Director

It has been a good year at the Center. I am happy to report a banner year for publications with two journals completed; a TAP series manuscript and a book on the Mexican Revolution in editing; two Occasional Papers in layout; and the long-overdue Big Bend National Park Report finished.

As for fieldwork, we continued our third collaborative year with the University of Kansas at the San Esteban Rockshelter and Genevieve Lykes Duncan site. We made great strides towards finding and identifying a fully stratified archaeology site in the Big Bend. Some of the preliminary results of this work were presented at our 27th Annual Conference. We also were able to host David Bodo—a LiDAR surveyor from Ohio—who mapped dozens of our active sites. We also had a successful year of adobe restoration at the Alvino and Dorgan houses, completing the parapet on the Alvino and starting repair on the other.

We got our message out to the public in new ways with a sold-out talk at the Trans-Pecos Music Festival, booths at the SRSU Fall on the Mall, Marfa Lights Festival, and several pop-up events. We will continue to talk to the public about the importance of our work, and we look forward to seeing you at an upcoming event.

We have some great momentum heading into 2022. Wishing you all a healthy and productive end to 2021.

—Bryon Schroeder

A Brief Review of Select Rock Imagery in the Black Hills

"Interpreting the meaning and significance of the graphics of any age, but particularly anonymous prehistoric rock art, is a perilous enterprise" (York and York 2011:93).

A survey of the 2,800-acre Black Hills resulted in the recordation of 37 campsites. Six of the campsites include probable structural remnants of single- or multi-course rock alignments. Three of the campsites include one or more small rockshelters, and these three sites are the only campsites in the Black Hills that also include rock art.

Figure 1. Example of fossil casts on the Lower Aguja sandstone formation in the Black Hills.

The survey recorded 29 rock art sites. The rock art is located on sedimentary sandstone rimrock and on the large sandstone boulders that have tumbled downslope. Of the recorded rock art sites, 10 include both petroglyphs and pictographs, and the remaining 19 sites consist of petroglyphs only. Unobtrusive historic names and dates, etc. are present at 4 of the 29 sites. Nine rock art sites include one or more small igneous basalt metates. Other than these small metates, cultural features or materials are not present at any of the rock art sites, indicating that typical mundane campsite activities did not take place at these sites. This suggests that the rock art sites were considered sacred space.

Multiple research avenues and comparative analyses have been considered in an attempt to reach some understanding of this large group of primarily abstract petroglyphs. One difficulty is that this corpus of Desert Abstract rock imagery lacks distinctive quadrupeds and bipeds (other than a single anthropomorph) or an abundance of imagery that is immediately recognizable.

Attraction of the Black Hills

Particular geographical and geological aspects of the Black Hills may help to explain their attraction for the creation of rock art.

The Black Hills sandstone is known geologically as the Lower Aguja Formation, and it includes invertebrate fossils. The rectilinear and curvilinear fossil casts have the appearance of plant-like structures, and the casts on the sandstone surfaces greatly resemble the pecked petroglyphs that people themselves place on the rock (Fig. 1). This similarity likely stimulated the initial creation of rock art in the Black Hills. In addition, the sandstone occurs in a multitude of colors ranging from tan to pink to apricot along with many additional hues and colors. Many of the boulders also contain attractive anomalies that may appear as circular or curvilinear bands of white color running through the sandstone.

Of even greater significance is the fact that some of the fossil casts are oriented such that they appear as open holes in the boulders. And, surprisingly, water seeps from many of these fossil cast openings. It has yet to be determined if this seepage phenomenon occurs immediately after a rain or, perhaps, months later. Quite possibly, the occurrence of rainwater flow within and through the boulders, leading to eventual seepage from the fossil cast openings, differs with each individual boulder. This would likely depend upon the boulder's internal structure, but the seepage of life-giving water from the boulders themselves is extraordinary. Eventually, mineral precipitate builds up around the mouths of these fossil cast openings (Fig. 2). In other instances, a frosting of precipitate covers some surface areas of individual boulders due to moisture seepage. Evidence that people were aware and interested in this phenomenon of moisture within the rock is seen when some of the closed fossil cast holes, lacking a precipitate crust or staining, have been heavily pecked. This action is suggestive of a supplication for water or, perhaps, notions concerning the "magical" gifting of water from an entity or entities within the boulders themselves. The possible belief that a closed fossil cast indentation might produce water if sufficient pecking occurs around the depression may demonstrate this thought process.

Archaeoastronomy in the Black Hills

Two rock art sites in the Black Hills are involved with solar astronomy. The Pecked Cupule site on the east side of the Black Hills consists of 23 cupules carved into a horizontal sandstone spall. Seven cupules appear to represent the front portion of the Scorpius constellation. Interestingly, Scorpius rises on the eastern horizon just prior to the Sun and at the same general azimuth during the winter solstice each year. Five additional grouped cupules appear to represent the Pleiades Star Cluster as viewed with the naked eye. After an absence, the Pleiades reappears in the eastern sky in mid-May, signaling the summer solstice coming in June and the advent of warmer weather. The Pecked Cupule site is proposed as a summer and winter solstice sunrise sighting station.

A Summer Solstice Solar Marker event was recorded in 2016 at the Beehive site located on the west side of the Black Hills. Near sunset during the summer solstice, a sunlight/shadow interface bisects a two-ring concentric circle located in an alcove at the site. This sunlight/shadow interface continues through the concentric circle until it forms the right profile of a human-like figure with the concentric circle serving as a goggle eye. The figure has additional facial features and an ear represented by a crack in the rock face and is wearing a conical hat. All of these aspects are created by a ledge of rock that has been intentionally altered in order to create the image just described. This figure is thematic in the Black Hills. Additional simple round faces or masks with facial features, often created from natural features of the rock face, and wearing conical hats are found at three additional sites in the Black Hills.

Representational Rock Art

The primary panel at the Pumpkin Vine site is a probable example of representational rock art (Fig. 3). The primary focus of this imagery rests on a natural, raised, horizontal lip that runs across the face of the panel and serves as a groundline for the scene. The

Figure 2. Mineral-stained fossil cast opening on a sandstone boulder in the Black Hills.

Figure 3. Harvesting activities at the Pumpkin Vine petroglyph site in the Black Hills. This petroglyph panel strongly resembles the Lower Pecos River Region's Red Linear style rock art.

central action in the imagery seems to depict two human-like stick figures, one on either side of a tall vertical line. At the bottom of this vertical, between the two stick figures, three round, fruit-like objects appear to be attached to the vertical line by stems. A fourth round, stemmed object is held by the stick figure on the right side of the vertical line, giving the impression that the two individuals are harvesting the round fruit-like objects. On the extreme lower right portion of the panel, two heavily patinated horizontal rows of the same round or ovoid, stemmed objects are faintly discernible. These depictions of probable past harvests were composed on the panel at an earlier date as noted by a much heavier and darker patination.

The rock art of the Lower Pecos River region of southwest Texas, a style very similar to the Pumpkin Vine panel rock art, is designated as the Red Linear style (Kirkland and Newcomb 1967: Plate 53, No.1). The Red Linear style usually presents stick figures as representations of probable humans and utilizes explicit imagery to depict each individual's sexuality: "[m]ales are shown with erect phalli. Females can be distinguished by a small loop drawn in the pelvic area..." (Turpin 1984:184, Figure 2). Based upon this interpretation, the two stick figures on the Pumpkin Vine panel are females, as they both have the circular elements, an apparent artistic device, located in the lower pelvis area.

Turpin has proposed that the Red Linear style arrived in the Lower Pecos River region as a fully developed style, "[t]he divergence from Pecos River style tradition in both form and content supports the intrusion of a fully evolved ritual art, perhaps developed in another medium" (Turpin 1984:195). The development of the Red Linear style rock art in petroglyphic form in a region west of the Lower Pecos region, such as the Black Hills of Brewster County, satisfies both of these criteria. Turpin adds additional information in favor of the Pumpkin Vine site possibly following the Red Linear style rock art tradition: "[t]he monochrome Red Linear people are miniature, vivacious, gregarious, and most often shown in profile...the Red Linear can be more aptly termed a true pictograph, a story told in pictorial form" (Turpin 1984:192)

The Imagery

Seventeen projectile point petroglyphs are pecked onto the rock face at the Hidden Panel site (BH-43). The projectile glyphs are pecked in outline and infilled with pecking with no apparent abrading involved. The majority of the figures appear to be dynamic, as though morphing into human-like beings or anthropomorphs. It should be noted that rock imagery seemly representing projectile points are found over a wide area of West Texas, southern New Mexico, and southward into Mexico (Sutherland and Steed 1974; Mendiola 1998:13; Miller 2018: Figure 7.5).

Several probable insect designs are found in the Black Hills rock art. These include a spider dangling from a line positioned beside a supposed anthropomorph (Fig. 4). A second petroglyphic design is highly reminiscent of an insect, consisting of three circles stacked vertically atop one another (Fig. 5). Two appendages appear as antennae formed into angular attachments at the top of the uppermost circle. Another single, angled line is attached to one side of the central stacked circle, perhaps suggestive of an arm. An undulating line extends horizontally from the bottom of the lower circle followed immediately by five unidentified individual symbols or shapes. Just below the end of this row of figures is a circle quartered by crossed bands. Another probable insect design appears as a wasp-like figure with a long proboscis. The near perfect representation of a freshwater

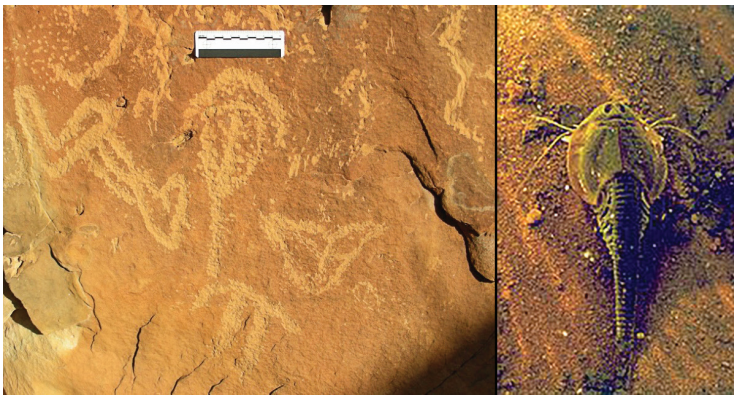

Figure 4. Anthropomorphic figure with accompanying spider dangling from a strand of web. This is the only bipedal figure in the Black Hills, and there are no quadrupeds present in the rock imagery.

Figure 5. Insect-like petroglyph and accompanying design elements in the Black Hills.

Figure 6. Freshwater crustacean. A tadpole shrimp petroglyph on the left and photograph of Triops longicaudatus *(tadpole shrimp) on the right.*

Figure 7. Zigzag serpent with branched antlers.

crustacean, the tadpole shrimp (*Triops longicaudatus*), is carved onto the rock face at the Overlook site (Fig. 6).

A pictograph of conjoined serpents with forward-projecting horns or plumes is abraded onto a panel at the Beehive site. The serpent facing to the left is abraded in a cautious and careful manner, while the serpent on the right appears to have been created more casually with less effort or care. Numerous and varied serpent imagery is present in the Black Hills rock art. In the alcove at the Beehive site, a canid-eared serpent carries a bowl or basket on its back. At the Overlook site (BH-63), a zigzag-bodied serpent has a set of branched antlers that extend vertically from the head (Fig. 7).

Publication of Report

A report on this comprehensive survey of the Black Hills, with discussions of all campsites and rock art sites recorded during the survey, and including color plates of the rock art, is currently in editing. The report will be published in the Papers of the Trans-Pecos Archaeological Program Series, Number 8, by the Center for Big Bend Studies. Publication is forecast for the spring of 2022.

—Roger D. Boren

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CBBS Public Outreach in the Big Bend

In the past year, the Center for Big Bend Studies has made a major effort to be more involved in our community. This year we focused on our visibility and participation in various festivals and classroom activities as well as keeping the general public informed through various presentations. We hope to continue to expand these efforts in the future.

At a "Magic Around Us" class in Marfa, 6 to 12 year-old students learned what archaeologists do and how we are able to learn about the deep human history in this region. The students assisted us with collecting a sample from a *Yucca* sandal, which was subsequently submitted for radiocarbon dating, returning a date of AD 1435–1479.

Other outreach events or presentations include: information booths at the Marfa Lights Festival and at Fall on the Mall at Sul Ross; presentations at the Davis Mountains Fitness & Training Camp at Prude Ranch, Trans-Pecos Music Festival in Marfa,

THE 27TH ANNUAL CONFERENCE

This year, our 27th Annual Conference was well attended, with 143 registrants; for two days participants enjoyed presentations on the archaeological and historical scholarship of the borderlands region. We held the meeting in the banquet room of the Espino Center at Sul Ross State University so that folks could spread out and feel comfortable at the tail-end of the pandemic. The response to this arrangement was positive, and we will see about continuing this setup in the future. We also hosted a panel of scholars on the Mexican Revolution that was well-received; additional panels will be added in future conferences. Ideally, these will continue to coincide with the Center's new publications.

We held our first-ever silent auction and raised over $2,000 for our education and research efforts. We could not have done it without the support of the following businesses and individuals who generously donated their time, talent, and services to this auction: Gage Hotel, Chinati Hot Springs, Lajitas Golf Resort, Texas Ranch House Too, Marfa Brands Soap, Marfa Public Radio, Desert Rose Provisions, Murphy Street Mercado, Tim Roberts, Kristina Van Dyke-Fort, Liz Potter, Carol H Fairlie, Tom Curry, Katelyn Betsill, Feather Radha, Roger Boren, and Bill Wright. We also sincerely thank all who placed bids and took part in this event. Your support means so much to us!

The banquet speaker was Dr. Rolfe Mandel, distinguished professor of Anthropology and Geology, director of the Kansas Geological Survey, and the director and senior researcher at the University of Kansas Odyssey Archaeological Research Foundation. He spoke about the Center's collaborative work with The University of Kansas in our search for evidence of the earliest Americans in the Big Bend region. He is also revisiting many of the Claude Albritton and Kirk Bryan cutbank exposures to formalize their early findings to continue focusing our search for early sites in the region.

We were so thankful to Eden and Mark Hinshaw of Roux for catering the event. Their food, from the breaks to the banquet, was excellent. We look forward to seeing you all at our 28th Annual Conference next year.

—Bryon Schroeder and Michelle Lacey

Sponsor More Youth at Our Annual Conference

This year at our Annual Conference we had poster presentations from several Sul Ross students. We received many complimentary comments on this and, following that success, we want our future conferences to include more papers and posters presented by students from this region and the surrounding area. We believe in the importance of our youth having a stake in the history of this region, and we want to encourage students at all levels to conduct research and present their findings.

We are campaigning to raise funds to be able to offer a $100 stipend to every student who presents at our conference, as well as gas money and hotel accommodation if they are from out of town. In addition, all conference attendees would be given a chance to vote on the best student presentation, and the winner would receive an extra $250.

Our goal is to raise $5,000 for the 2022 conference by June 2022. If you would like to donate to this cause or sponsor a student ($100), please get in contact with us (cbbs@sulross.edu or 432-837-8179).

Buddy Imboden and Austin Snyder

the Sul Ross Spotlight (a new lecture series), the University of Kansas graduate student-run lecture series, the Comanche Trail Event at the Gage Hotel in Marathon, the Texas Master Naturalists meeting, and a First Year seminar at Sul Ross. On December 16, our staff will present at an upcoming brown-bag lunch lecture at the Sibley Nature Center in Midland.

When possible we like to include volunteers to participate in our endeavors. Recently we welcomed interested parties to help make adobe bricks for the restoration of the Alvino and Dorgan houses in Big Bend National Park.

We were so happy to see all the interest in our organization from local residents and the surrounding communities. If there is an event you want us be a part of, let us know. Come say hello next time you see us!

Surveying the History of Our Past

David Bodo surveying at San Esteban Rockshelter

In August of 2018, I received an email from CBBS director Bryon Schroeder about a cave near Marfa, Texas, called Spirit Eye. We talked on the phone about the LiDAR scanning he had performed, and he indicated he needed help with registering and generating a map. I was able to begin working with his data and felt that we could gather some additional data to enhance their mapping effort. We began planning a spring 2020 trip to scan the site; however, as we got closer to our trip, the reality of Covid set in, leading us to postpone our meeting.

As 2021 moved forward, Bryon and I both felt it was time to schedule our work. The timing could not have been more perfect; a group from the CBBS, along with Odyssey Archaeological Research Fund (OARF) at the University of Kansas, would be working on the San Esteban Rockshelter. In rather simple terms, the goal of this trip would be to use LiDAR technology (Light Detection and Ranging) to accurately map the archaeology sites. LiDAR emits pulses of light from the scanner, which then travel out to an object and return, all while the scanner records a 3D position, relative to itself, of each object. We are able to send out and retrieve about 400,000 points per second along with 9 high-quality photos every 45 seconds. By doing this in multiple locations around a site, we can create an accurate 3D model with more data than previously possible. Using this immense amount of information can help to create a more comprehensive understanding of the cave itself.

The data acquired from running the LiDAR scanner can aid in the generation of detailed base maps of the site conditions as they exist today. Combining this accurate data set with references to past field notes, maps, and discoveries, a timeline of the events and occupations of the site, dating back thousands of years, can be determined.

In June of 2021, I packed my Riegl LiDAR Scanner, along with some other equipment, and headed to the airport. The flight from Pittsburgh to El Paso was relatively easy with a quick layover in Dallas being my only delay. I felt assured my checked luggage, including my scanner, was on the proper plane. Upon landing in El Paso, I encountered the distinct southwestern atmosphere in what seemed to me as a rather unique airport. While the bag containing my tripod and clothes came out quickly, there was no sign of the large black case containing the scanner. I could not help the anxiety that began to build in my chest, and thoughts of the trip being a complete bust surfaced in my mind. As if the American Airlines baggage carousel could sense my distress, my black case suddenly appeared out of the dark tunnel. Much to my relief.

Shortly after, I met Bryon outside of the airport. In his now-loaded-down Subaru, we began our three-hour drive to the main base near Marfa. When we arrived at the camp, everyone was eager to see how the scanner performed. I knew I needed to test the equipment to verify that it had developed no issues during travel, so I indulged them. Riegl has a great feature that allows you to view data as you collect it on any mobile device via a Wi-Fi connection; I realized that this group was two things: very interested in technology and easily entertained. The images viewed have a negative photo appearance, leading a couple of the bearded archaeologists to determine that they looked like Santa Claus. I felt immediately pulled into this group.

We spent the next four days mapping San Esteban Rockshelter and Bee Cave Canyon, and remapping Spirit Eye Cave. Like archaeologists, I am realizing just how important we as surveyors are to recording snapshots of life today, preventing vital details from being lost to the vacuum of time. As I walked the San Esteban site for the final time, I was able to witness the beginning processes of exposing a cooking hearth. Just thinking of the data that could have been gleaned from the sites before the looting of objects is a bit mind-blowing. Even with this loss of artifacts, I believe the CBBS, the OARF, and Bryon are up for the challenge of piecing the history of these people back together. With the aid of modern technology, they are closer than they've ever been before in accomplishing their goal.

—*David Bodo,* Bodo Surveying

THANK YOU!

The following foundations and individuals have provided support since the publication of the 2020 CBBS Newsletter. These contributions have played significant roles in our many achievements.

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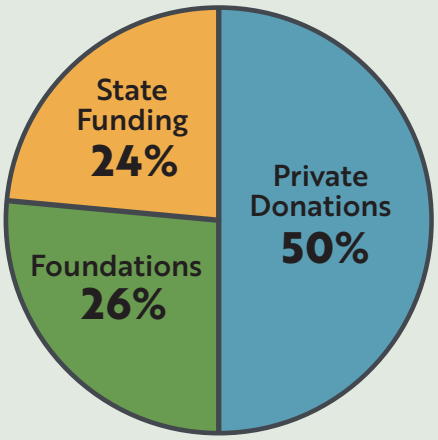

2021 FINANCIAL REPORT

The work of the Center is primarily achieved through the generous support of our private donors. We get about equal support from foundations and state funds, but support from foundations has dropped about 20 percent in the last 5 years.

We have three endowment funds that were set up by Dr. Earl Elam when the CBBS was initiated. These are the CBBS Endowment, the Franklin W. and Dorothy Cotten Daugherty Memorial Endowment and Excellence Fund, and the Etta Baugh Brown (Winnie) Memorial Endowment. The interest of each goes into our operating funds for various activities. We also sponsor student research through the Ellen Sue Turner Memorial Fund, which is used to pay student interns.

ANOTHER SUCCESS: Adobe Preservation in Big Bend National Park

The CBBS is proud to announce the successful completion of another round of historic preservation in Big Bend National Park. This is the third year that the CBBS has conducted historic preservation work in Big Bend in cooperation with the National Park Service, and it was the most comprehensive project to date—taking place over the course of seven weeks from mid-September to mid-November. Senior project archeologist, David Keller, along with Joey Benton and the adobe crew at Silla Marfa, stabilized two of the most significant historic structures in the park—the Alvino and Dorgan houses—both located in the far southwestern portion of the park.

The majority of the work took place on the Alvino house, which is the park's oldest standing vernacular adobe structure, dating to ca. 1903. Using the house site just below Castolon as a staging area, the crew made some 1,450 adobe bricks with locally sourced clay that matches the historic adobes used to construct the house. With these bricks, they were able to rebuild the entire Alvino house parapet—one of the most critical and vulnerable elements of adobe construction. In response to its advanced state of erosion, as many as six courses were laid in some areas, which is expected to extend the roof life for decades to come. In addition to the parapet, numerous repairs were made to the rubberized roof membrane, stopping leaks that may have been active for years. Equally significant, and daunting, was the task of mud plastering the entire structure. Because previous plasters had long since washed away, many of the adobe bricks and mortar joints had eroded to depths of three or more inches, requiring significant infilling that took six or more "passes" to complete. By the final coat, however, the house walls were made more uniform than they had been in decades. Serving as a sacrificial layer, the plaster will help protect the bricks from weathering due to rain, wind, and hail.

The Dorgan house presented its own unique set of challenges, including previous interventions using stabilized adobes that had long since failed. With its outsized door and window lintels and its location in front of the magnificent Santa Elena Canyon, the structure is one of the park's most iconic. Sadly, however, it is also in a state of partial ruin. As such, efforts to stabilize it are only meant to preserve its front façade. Using the same adobe bricks used at the Alvino house, the northwest corner of the structure was rebuilt, fallen window lintels were re-set, and critical mortar joints were repointed. In addition, a cap of stabilized adobes was placed as the top-most course to slow erosion.

In all, two of the park's most important historic structures were given their most substantial upgrades in 30 years. Although regular maintenance of both structures will be required, for now they are standing proud once again as priceless relics of our historic past.

The Big Bend National Park historic preservation project was made possible through funding by the Big Bend Conservancy, the National Park Foundation, and the National Park Service's Centennial Challenge Fund.

—David W. Keller

Opposite page:
The Alvino house during repairs, with adobe bricks drying in the foreground.

Top to bottom:
Adobe crew screening clay for adobe bricks.
The Dorgan house following stabilization.
Adobe crew at the Alvino house. From left, David Keller, Luis Sanchez, Joey Benton, Tim Guillen, Rene Sanchez, Rosalio Sanchez. Missing from photo: Luis Madrid.

West Texas Artifacts *at the* Denver Museum of Nature & Science

In the basement of the CBBS offices is a collection of perishable artifacts little is known about, but a story is starting to emerge. The combined five drawers of mostly perishable materials are accompanied by a note naming George McSpadden, a water well driller who worked across the Big Bend region, as the original collector. As impressive as the portion of the collection we own is, local lore suggests it was triple the size before the larger part was donated to The University of Texas. Finding out if the McSpadden collection was as large as it was rumored to be and where it ended up was an issue Center staff pursued for years. However, no one at any of the large museums, curation facilities, or universities knew of a large perishable collection from West Texas that had been donated to The Univeristy of Texas, any musuems, or curation facilities.

A lone file in the CBBS director's office, seemingly unrelated to the collection downstairs at CBBS and the McSpadden saga as a whole, suggested the Denver Museum of Nature and Science (DMNS) had in their collection a braided lock of hair from a cave site in West Texas. Follow-up with the DMNS in 2020 determined that the lock of hair was repatriated to the Ysleta del Sur Pueblo in El Paso. However, the DMNS still retained an extensive collection of perishable items from West Texas formally owned by a G. McFadden (as he was labeled in their files).

This November, the CBBS got to visit those collections at the DMNS and was able to corroborate that the 190-plus artifacts they own represent a significant portion of the George McSpadden collection. The collection was donated to the DMNS by a Carl Fisher in the early 1980s after he moved from Texas to Breckenridge, Colorado. His notes, on file with the collection, indicate it represents the contents of a cave from Brewster County excavated by a G. McFadden, a water well driller from West Texas. This remarkable collection contains amazing items like a strung bow and a small-game net, which we will now get the opportunity to study. The largest open question is: How did Carl Fisher gain control of the collection and is there more of it with his family? We'd love to hear from our members if they know anything about Carl Fisher/G. McSpadden and how this collection ended up in the DMNS. We would appreciate any information available on this collection.

—Bryon Schroeder

Net from West Texas at the Denver Museum of Nature & Science

Research at Boot Ranch Enters its Second Phase

The first phase of archaeological research on Boot Ranch was completed in the summer of 2021 and is now pivoting to a second phase that promises to answer some of the more pressing questions regarding the ranch's prehistoric occupations. Located approximately 13 miles northeast of Alpine in far northern Brewster County, Boot Ranch contains a cluster of low limestone hills that are the surface expression of the geological structure known as the Hovey Dome. Surrounded by deposits of primarily volcanic origin, these hills are believed to have offered a unique suite of resources to people prehistorically. Beginning in the spring of 2019, CBBS senior project archaeologist David Keller, with assistance from other CBBS staff and a volunteer archaeologist, began systematically surveying select portions of the ranch using an environmentally stratified sampling strategy. By the summer of 2021, a total of 3,680 acres—amounting to a whopping 22 percent of the ranch—had been intensively surveyed. With a total of 178 sites documented, site density was surprisingly high, two times higher than that found in Big Bend National Park. Most sites tend to be located around the flanks of the mountain core, especially in broad intermountain valleys, at the head of major drainages, and just beyond the edges of rocky pediments where soil had accumulated.

Within the sites containing prehistoric components, a total of 1,184 features were documented—the vast majority of which appear to represent earth oven technology, including large, robust features indicative of intensive food processing. In addition to these features, a total of 105 artifacts were collected from sites as well as isolated finds. Seventy of these were temporally diagnostic dart and arrow points, about 60 of which could be provisionally typed. The breakdown indicates prehistoric occupation of the ranch spanning late Paleoindian times to the Late Prehistoric, but with a significant spike during the Late Archaic period. Although far fewer in number (n=14), submitted radiocarbon dates show a similar trend, ranging from the Early Archaic to the Protohistoric period, but with a full 85 percent being Late Archaic or later.

The next phase of fieldwork will focus on collecting a much wider range of radiocarbon samples, exploring several poorly understood features, and systematically excavating and sampling a number of thermal features on the ranch with a focus on burned rock middens. Although significant research into this feature type has taken place in the Lower Pecos area to our east and around Fort Bliss to our west, precious little has taken place locally. It is hoped that by utilizing a standardized methodology, we will be able to compare and contrast the function and timing of these features on Boot Ranch with those of adjacent regions. Stay tuned to learn what we find out!

The Boot Ranch project is made possible through the generous support of landowner Anne Calaway in collaboration with the Center for Big Bend Studies.

—David W. Keller

Top to bottom:
View from a small rockshelter on Boot Ranch.
Pitted stone mano from a site on Boot Ranch.
Volunteer Kent Hicks documenting a burned rock scatter.

CBBS Publication Schedule 2021/2022

Blecha, Erika

2022 The Boulderglyphs: A Study of Indigenous Conflict and Historic Ranching Lifeways along the Big Bend of the Rio Grande. TAP Series, Center for Big Bend Studies, Sul Ross State University.

2022 Preliminary Results of the 2020 Excavations on the Northwest Bank of the Genevieve Lykes Duncan (GLD) Site (41BS2615) Brewster County, Texas. In 2022 *Journal of Big Bend Studies.*

Boren, Roger

2022 A Comprehensive Survey of the Black Hills, Brewster County, Texas, TAP Series, Center for Big Bend Studies, Sul Ross State University.

Foster, Michael, Andy Cloud, and J. Andrew Darling

2022 Archaeological Reconnaissance of Portions of the Rio Conchos, Chihuahua, Mexico—J. Charles Kelley's 1949 and 1951 Surveys. Occasional Papers, Center for Big Bend Studies, Sul Ross State University.

Cloud, Andy and Richard Walter

2022 A Case Study of Protohistoric and Historic Brownwares from La Junta de los Rios, Presidio County, Texas, and Ojinaga Municipality, Chihuahua. Occasional Papers, Center for Big Bend Studies, Sul Ross State University.

Keller, David

2022 Archaeological Investigation at the Porvenir Massacre Site Potential: Submitted to the *Journal of Conflict Archaeology.*

2022 *Archeological Sampling of Big Bend National Park, Brewster County, Texas.* Reports in Contract Archaeology, Center for Big Bend Studies, Sul Ross State University.

Schroeder, Bryon

2022 Evidence of Late Archaic Maize Use in the Texas Big Bend Region. Accepted by *Kiva.*

2022 Possible Spirit Eye Book.

Schroeder, Bryon and Xoxi Nayapiltzin

2022 A Complicated History: Collaboration with collectors to recover and repatriate Indigenous human remains removed from Spirit Eye Cave. Accepted by *Advances in Archaeological Practice.*

Walter, Richard and Bryon Schroeder

2022 Late Paleoindian Earth Ovens in the Texas Big Bend. In *Earth Ovens and Desert Lifeways: 10,000 Years of Indigenous Cooking in the Arid Landscapes of North America.* University of Utah Press.

Various Authors

2022 Reissue with several new articles (Ainsworth, Klingemann, Turner, Von Feilitzsch) on the Mexican Revolution. Occasional Papers, Center for Big Bend Studies, Sul Ross State University.

What Can Plants in a Pit Tell Us?

Top of the buffalo gourd pit feature.

Paleoethnobotany is the study of human–plant relations through the archaeological record. In the northern Chihuahuan Desert, the human relationship with and knowledge people had of native plants made this place habitable. The knowledge of every plant and their uses were integral to hunter-gatherers' survival. This plant knowledge, unfortunately, is no longer inherent in our societies today; however, through paleoethnobotany we are not only able to relearn the importance of specific plants, but we can learn so much more—including the seasonal use of a site and the environment during that time. This is especially true at a site like San Esteban Rockshelter, located south of Marfa, Texas, and where the Center has been working for the last three years in partnership with the Odyssey Archaeological Research Fund at the University of Kansas.

Delicate botanical remains, such as leaves and grasses, do not preserve in most archaeological site settings, which is why archaeologists often rely heavily on the cultural material that preserves the best—stone tools—to understand much of our human past. However, by looking at just the stone tools, we are easily missing over 80 percent of the cultural material history. The opportunity to work at a site with such remarkable preservation as San Esteban has given us the opportunity to study past human behavior in the Big Bend to a higher degree.

One of the main human behaviors we have observed at this site is the caching of botanical materials in pits. The following is an overview of three different botanical pit caches, two of which were recently excavated from San Esteban Rockshelter; the third one was excavated by the Center in 2004 from Tres Metates Rockshelter in southwestern Presidio County.

A cache of 15–20 whole, mature buffalo gourds (*Cucurbita foetidissima*) was discovered in a pit feature between two boulders at San Esteban. The feature is estimated to date roughly between 1,200 and 1,700 years old, based on the deposits in which it was situated. Buffalo gourds are a perennial and native to Texas. Like all members of the squash family, the buffalo gourd seeds produce cucurbitacins, which are toxic in high quantities and have a bitter taste. The seeds are high in fat and protein, however, and when they are roasted or boiled they become safe to eat and can either be eaten as is, ground into a meal and made into a mush, or processed into a vegetable oil (Moerman 1998:187).

Fragments of the shell of the gourd are present in almost every excavation unit at San Esteban. Isolated finds of complete or nearly complete buffalo gourds are not uncommon at San Esteban. What is interesting about this feature is that the pit contained roughly 15–20 complete buffalo gourds, indicating caching. These gourds store well; once they are dried out, they can be easily rehydrated for later use. This feature could represent groups drying and storing the squash for later use.

The presence of buffalo gourd pieces throughout the deposits suggests continued seasonal use of the rockshelter. The buffalo gourd will start to appear around mid-summer into late summer. The people who collected the gourds more than 1,200 years ago were likely at the rockshelter in the summer when the fruit became ripe; they cached the gourds because they planned to come back at a time when the gourds were no longer growing—but they never returned to retrieve them.

Another pit feature of interest at San Esteban consists of a cluster of rocks and a metate fragment nestled on top of a pit lined with pecan tree (*Carya illinoinensis*) twigs, leaflets, and leaves. One corncob with its husk still attached was placed inside the feature, underneath one of the rocks. This corncob was radiocarbon dated, revealing it is 1,820–1,630 years cal. before present (BP). A pecan tree is growing right outside the entrance of the shelter today, and it is likely that one or more were growing near the shelter 1,700 years ago.

Outside of this feature, evidence of *Carya illinoinensis* in archaeological contexts, though sparse, is dominated by the wood. A completely preserved pecan leaflet, leaves, and branch-lined

Buffalo gourds from the buffalo gourd pit feature.

pit, therefore, is uncommon. Modern studies have shown that the pecan leaves can treat respiratory diseases, especially tuberculosis (Bhardwaj and Sharma 2017). The leaves also have promising antioxidant and hepatoprotective actives, which is the ability to prevent liver damage. Popularly, the leaves have been used to reduce bleeding from minor abrasions; treat psoriasis, acne, and corns; and they have antimicrobial agents. The Comanche ground up the leaves to treat ringworm, and the Kiowa used the bark in a decoction administered to patients suffering from tuberculosis (Moerman 2009:122).

Some ideas for the function of this pecan-leaf-lined pit are: 1) the pit was a medicinal kit storage feature. The groundstone tool placed on top of the leaves was part of the kit used to process the leaves to make medicine. 2) The pecan leaves were placed in the pit to act as an antimicrobial agent to protect whatever else may have been stored inside. If the latter is the case, the single corncob may be evidence of what they stored inside, the rest of which was utilized or removed. The groundstone and stone fragments could have acted as a cap, sealing whatever was inside.

At Tres Metates Rockshelter in southwestern Presidio County, the Center discovered a similar pit feature in 2004 (Seebach 2007). This pit feature was lined with prickly pear pads (Opuntia sp.), and with creosote (Larrea tridentata) stems bunched and placed around the pit's rim. Inside were numerous seed and plant parts, including cultivars like corncobs and beans, as well as yucca leaves. The feature was determined to be storage for plant foods. The creosote was likely placed inside the pit to deter bugs and other critters because it has antimicrobial properties. Creosote, however, also has medicinal properties; it can be used as an antibiotic, and it can be boiled in water and drunk to help with allergies (Moerman 1998:297–298). Although this feature is over 1,000 years younger than the pecan pit found at San Esteban (AD 1440–1640 [Beta 196596]), it demonstrates a consistent behavior in this region of placing plants with both antimicrobial and medicinal properties into storage pits.

At San Esteban, we have at least 16,000 years of organic history preserved. With careful analysis, we will be able to see the change in plant use through time, and we will be able to track the seasonal use by the people occupying this important site. The buffalo gourd cache tells us that a group was occupying the shelter during the mid-summer around 1,500 years ago. The pecan-leaf-lined pit also tells us people were occupying the shelter about 1,700 years ago and were there during the spring/summer months when pecan trees have their leaves. Comparing these botanical artifacts and features to ethnohistorical accounts and other archaeological findings in North America will be important going forward.

—Erika S. Blecha

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1998 *Native American Ethnobotany.* Timber Press, Portland, Oregon.
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2007 *Late Prehistory Along the Rimrock: Pinto Canyon Ranch.* Papers of the Trans-Pecos Archaeological Program, No. 3. Center for Big Bend Studies, Sul Ross State University, Alpine, Texas.

Pecan leaflets from the pit feature.

La Vista de la Frontera is the annual newsletter of the Center for Big Bend Studies of Sul Ross State University. Address correspondence to the Editor, Center for Big Bend Studies, Box C-71, Alpine, TX 79832, or cbbs@sulross.edu.

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Mission

The Center for Big Bend Studies fosters interdisciplinary scholarship of the diverse prehistoric, historic, and modern cultures of the borderlands region of the United States and Mexico, with emphasis on the area encompassed by Trans-Pecos Texas and north-central Mexico. The Center is committed to the recovery, protection, and sharing of this region's rich cultural legacy through dynamic programs involving research, education, public outreach and publication.

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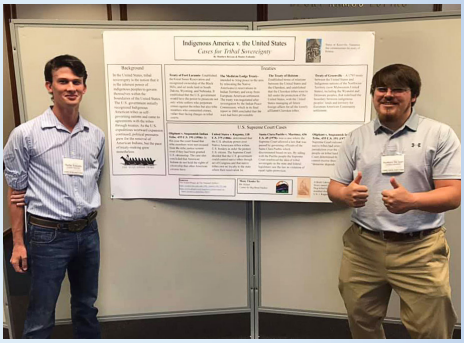
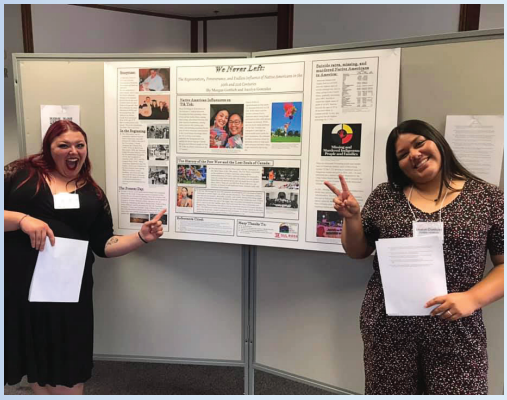
"This Is a Land of Nations"

SRSU History Student Poster Presentations



Hunter Eubanks and Matthew De Leon

As part of the Center for Big Bend Studies Annual Conference at Sul Ross State University, undergraduate students enrolled in SRSU's HIST 3306 (Native American History) gave presentations and held discussions with conference attendees. Students—ranging from first year to senior classifications—selected topics based on their interests with direction from their professor, Dr. Kendra DeHart. As a student-centered project, they researched, collaborated, and presented topics that ranged from local indigenous tribes in the Big Bend region to twentieth and twenty-first centuries indigenous activism. Using primary sources, such as oral histories, government records, material culture, pictures, and film, as well as secondary sources from leading scholars in Native American History, students delighted all attending. Presentations included: "Ways, Means, and Beans: Native American Material Culture, Foodstuffs, and Its Evolution Through the Ages"; "Passing Through and Leaving History: The First Nomadic Nations of the Big Bend"; "Indigenous America v. The United States: Cases for Tribal Sovereignty"; and "We Never Left: The Regeneration, Perseverance, & Endless Influence of Native Americans in the 20th and 21st Centuries." Students who participated are Matthew De Leon, Hunter Eubanks, Jocelyn Gonzales, Morgan Gottlieb, Buddy Imboden, Vincent Martin, Jackson Snow, and Austin Snyder. All students expressed gratitude for the experience—not only for the opportunity to engage in this academic conference but also for the CBBS staff and the participants, who seemed genuinely interested in SRSU students' historical scholarship and success.



Morgan Gottlieb and Jocylen Gonzalez

—Kendra K. DeHart

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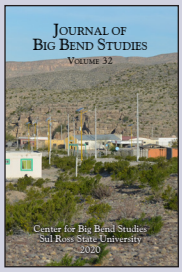

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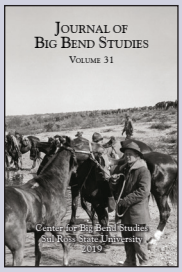

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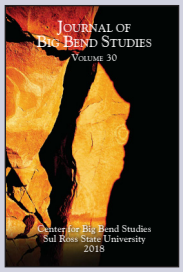

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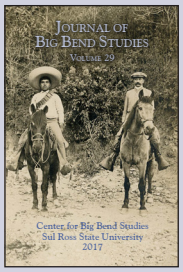

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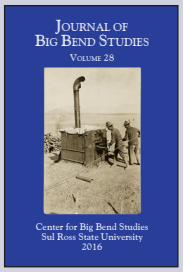

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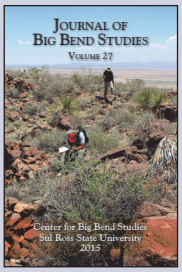

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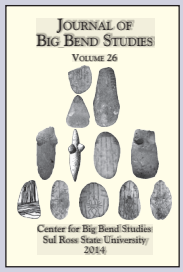

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