

2017 Annual Report



PCRG

PaleoCultural Research Group



Big River, Wide Valley

Public Archaeology in the Rio Grande Natural Area

The Rio Grande is the lifeblood of the San Luis Valley. Its waters sustain the valley's farms and ranches and provide welcome respite for flocks of migrating birds. For millennia, the river supported the herds of bison, deer, and antelope that brought American Indians to the valley.

The Rio Grande Natural Area was established in 2006 to preserve the river's outstanding scientific, scenic, educational, and environmental values. Running 33 river-miles from the Alamosa National Wildlife Refuge to the Colorado-New Mexico border, the natural area contains hundreds of archaeological sites, including rock shelters, homesteads, and rock art sites. However, prior to PCRG's investigation, only a small portion of the area had been surveyed.

The San Luis Valley contains a notable concentration of Folsom sites. The Stewart's Cattle Guard site, located near Great Sand Dunes National Park, is among the best-documented examples of short-term Folsom foraging camps anywhere. Little is known about the region's Early and Middle Archaic record, but during the Late Archaic and early Late Prehistoric, abundant evidence shows that hunter-gatherers lived in the San Luis Valley year-round, moving annually between winter base camps and summer foraging camps.

Ancestral Puebloans regularly visited the valley beginning in the 1100s. In the eighteenth and nineteenth centuries, Utes, Navajos, Jicarilla Apaches, Comanches and other groups regularly traveled to the valley to hunt and trade. The origin stories and oral histories of many American Indian tribes reference mountains, lakes, or other natural features located in the San Luis Valley.

Europeans and Americans began visiting the valley and interacting with the region's native peoples in the mid-1600s. The Rio Grande Natural Area includes the site of Don Diego de Vargas's 1694 crossing of the river. In addition to Spanish exploration, the natural area also includes sites that reflect early settlement, agriculture, and transportation.

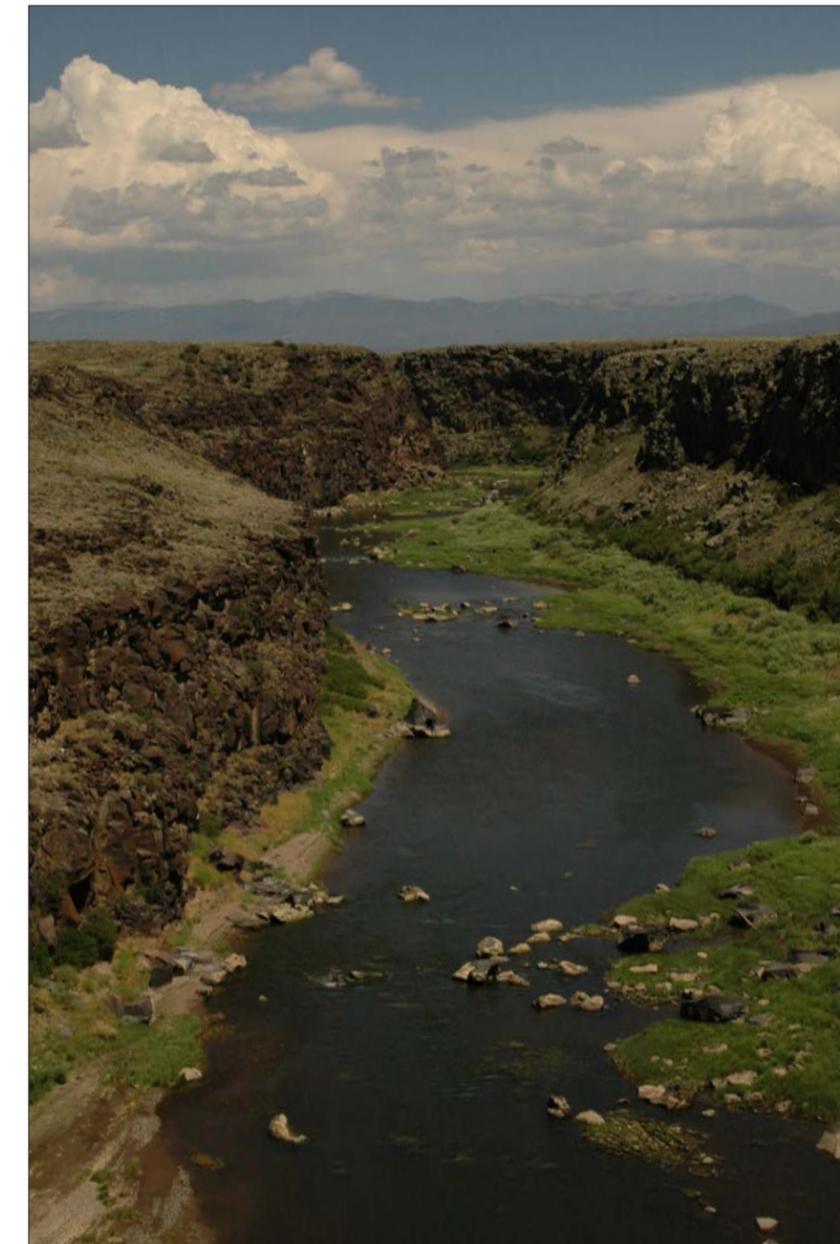
Our 2017 project was a collaborative effort that brought together five different agencies and organizations: the Bureau of Land Management, the Sangre de Cristo National Heritage Area, History Colorado's Program for Avocational Archaeological Certification (PAAC), the Colorado Rock Art Association, and PCRG. During the 16-day field investigation, project staff and volunteers surveyed 334 acres of state and federal land, recorded 60 new cultural resources, documented 57 rock art panels, tested two previously recorded sites, and salvaged four partially eroded hearths at one of the newly recorded sites.

The project's most surprising result may be the recovery of four Folsom points at three different sites. Intensive use of the valley by Folsom bands is well attested by sites adjacent to Great Sand Dunes National Park, but our project demonstrates spatially extensive use of the entire region. The discovery of multiple Folsom surface

On the Cover: PCRG volunteer Stephanie Bektor records a site on the rim of the Rio Grande Gorge.

Left: Blanca Peak, known to the Navajos as "White Shell Mountain" and to the Jicarilla Apaches as "Black Belt," dominates the eastern skyline of the San Luis Valley.

Below: The depth of the Rio Grande Gorge increases as the river flows south into New Mexico.





finds also points to large-scale landscape stability throughout the Holocene, a finding supported by project excavation data. Although data from woodrat middens reveal changes in the plant community along the river, the landscape as a whole appears to have changed little in the last 12,000 years.

Another surprising result of the project was the identification of scratched rock art motifs likely produced in the eighteenth-century by Comanche artists. Similar Comanche rock art has been documented on the Rio Grande in northern New Mexico, but until now had not been observed in the San Luis Valley.

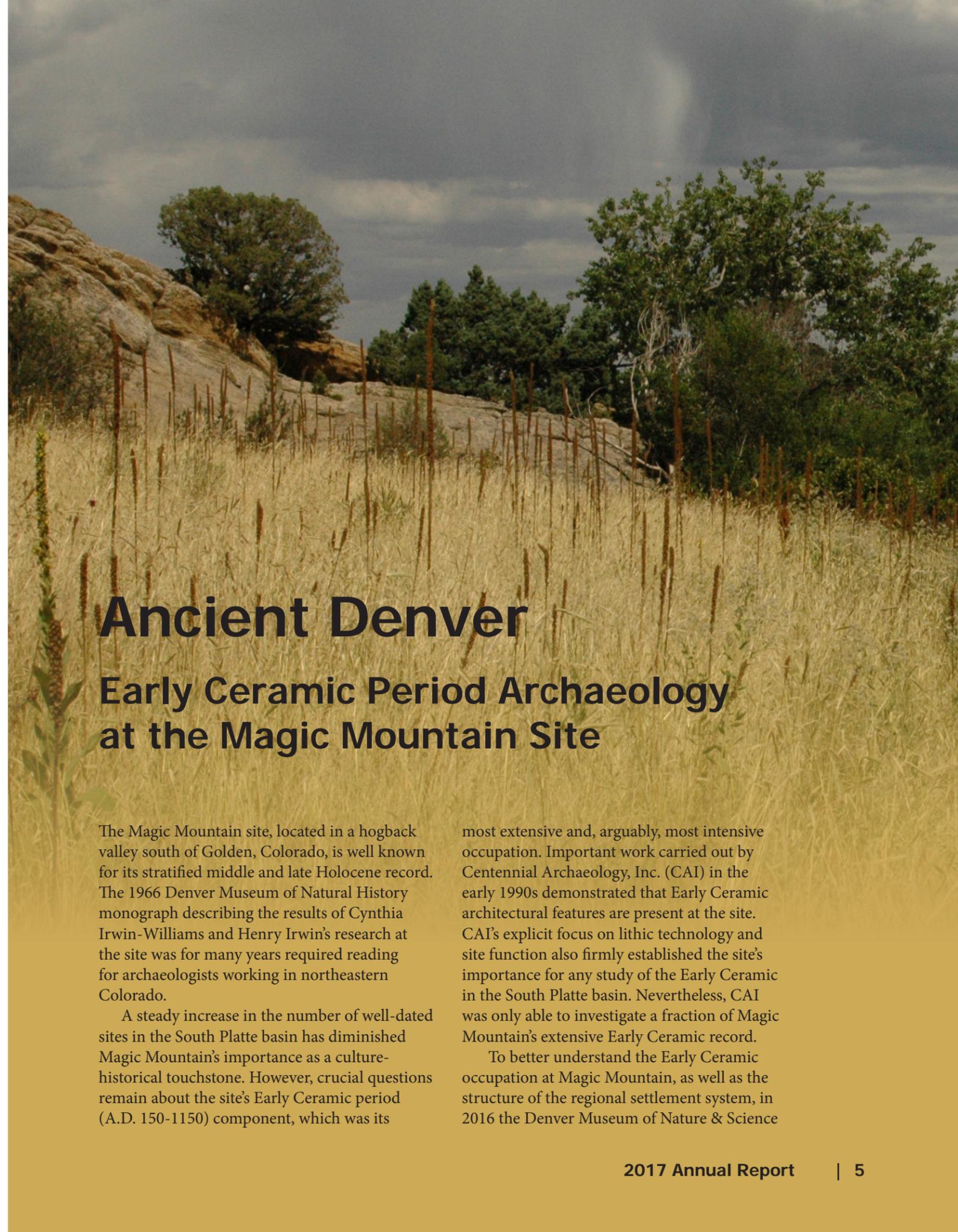
Much of the rock art documented during the project was produced by ancestral Puebloan artists. Multiple panels contain images of katsinas, supernatural beings who personify natural phenomenon, spiritual concepts or qualities, revered ancestors, or geographic locations. One especially complex panel may represent a shrine or ceremonial space that was visited regularly, possibly in conjunction with pilgrimage events.

In the Punche Valley adjacent to the natural area, the crew documented a dam and associated irrigation canals that were first constructed in 1883. Although the landscape today appears inhospitable, early settlers were able to use the water to grow alfalfa and small grains. In some years they planted potatoes, beans, and cabbage.

In addition to archaeological fieldwork, project staff also helped lead two Junior Archaeologist Camps and worked with Rig to Flip, a video production company based in Steamboat Springs, Colorado, to produce an interpretive video about the region. Go to <https://vimeo.com/240679571> to see the 6-minute video and experience the Rio Grande Natural Area for yourself.

Above: PCRG members Bruce and Ann Holloway take a break after excavating a partially eroded hearth.

Left: Rock art in the San Luis Valley ranges in age from the Late Archaic through the historic periods; this likely Tewa motif may post-date A.D. 1100.



Ancient Denver Early Ceramic Period Archaeology at the Magic Mountain Site

The Magic Mountain site, located in a hogback valley south of Golden, Colorado, is well known for its stratified middle and late Holocene record. The 1966 Denver Museum of Natural History monograph describing the results of Cynthia Irwin-Williams and Henry Irwin's research at the site was for many years required reading for archaeologists working in northeastern Colorado.

A steady increase in the number of well-dated sites in the South Platte basin has diminished Magic Mountain's importance as a culture-historical touchstone. However, crucial questions remain about the site's Early Ceramic period (A.D. 150-1150) component, which was its

most extensive and, arguably, most intensive occupation. Important work carried out by Centennial Archaeology, Inc. (CAI) in the early 1990s demonstrated that Early Ceramic architectural features are present at the site. CAI's explicit focus on lithic technology and site function also firmly established the site's importance for any study of the Early Ceramic in the South Platte basin. Nevertheless, CAI was only able to investigate a fraction of Magic Mountain's extensive Early Ceramic record.

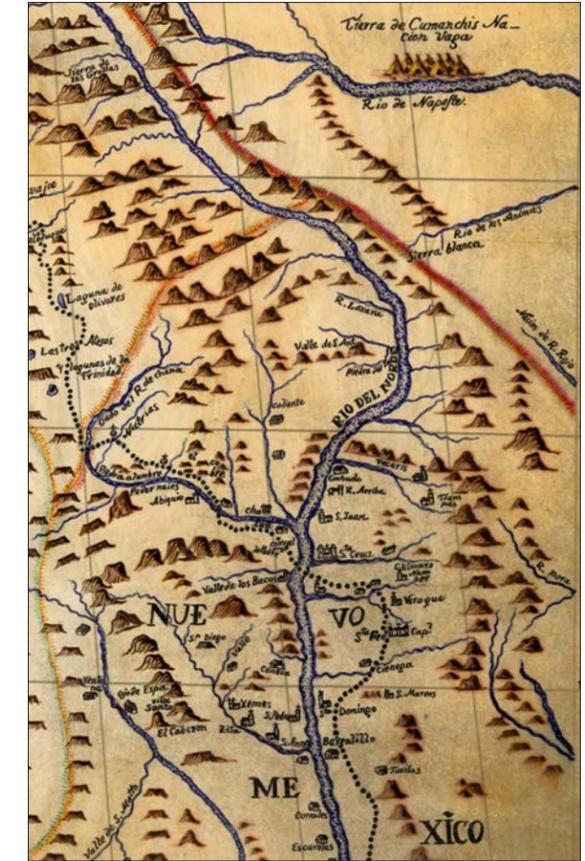
To better understand the Early Ceramic occupation at Magic Mountain, as well as the structure of the regional settlement system, in 2016 the Denver Museum of Nature & Science



Left: DMNS Curator of Archaeology Michele Koons shows tour participants how it's done (courtesy Denver Museum of Nature & Science).

Below (L-R): Ryan Baker and Michele Koons waterscreening; a bi-lobed roasting pit; Kristen Hall and Brianna Dalessandro working in Area 7.

Trail of Conquest and Commerce



Above: A section of Bernardo Miera y Pacheco's 1777 map of New Mexico. The Sangre de Cristo Mountains are shown on the right side of the map. Picuris Pueblo—immediately south of the Miranda Valley road—is shown at center right.

(DMNS) and PCRG initiated a multi-year, inter-disciplinary public archaeology project at the site.

The project relies heavily on geophysical data. Ken Kvamme, a PCRG member and Professor of Anthropology at the University of Arkansas, collected magnetic gradiometry data. University of Denver Professor of Anthropology Larry Conyers collected ground-penetrating radar data. In 2017, Conyers's graduate student Brianna Dalessandro collected additional GPR data for her study of the site's geomorphology.

Geoarchaeology is also a central focus of the project. Rolfe Mandel, Director of the Kansas Geological Survey, sampled numerous

excavation profiles and collected a series of long sediment cores for analysis.

In June, a joint DMNS-PCRG volunteer field crew excavated 28 1-m squares grouped into ten small blocks. All ten blocks exposed intact cultural deposits and features. Nearly all the contexts investigated in 2017 date to the Early Ceramic, based on the presence of diagnostic projectile points and the results of the first round of radiocarbon dating.

Education is also an important aspect of our work. Public tours were held throughout the two-week field investigation and more than 1,000 people came out to learn about the site and about the ancient history of the Denver basin.

Historians LeRoy and Ann Hafen once described the Old Spanish Trail (OST) as the “the longest, crookedest, most arduous pack mule route in the history of America.” Between 1829 and 1848, traders used the trail to take blankets and other woolens produced in the northern Rio Grande to California, where they exchanged them for horses and mules.

Like many nineteenth-century trails, the OST followed a network of paths first blazed by American Indians and others for hunting and trading. Close to its origin in Santa Fe, many segments of the trail were also routes of military conquest. One such segment—the Miranda Valley road, located south of Taos, New Mexico—was the focus of a joint survey carried out in June by PCRG and the Carson National Forest.

The presence of Valdez phase (A.D. 1050-1350) pithouses and extensive rhyolite quarries attest to ancient use of the Miranda Valley, which lies on the most direct route from Taos Pueblo to Picuris Pueblo.

Historical sources document use of the valley as an important travel corridor for Spanish settlers, possibly beginning with Don Juan de Oñate's 1598 entrada. Don Deigo de Vargas certainly used the road in the 1690s, during the Spanish reconquest of the Rio Grande valley following the Pueblo Revolt. Throughout the 1700s, the Miranda Valley was one of the main routes to Taos.

Although snowbound and impassible in

winter, the Miranda Valley road was a favored route for OST traders during the summer. By the 1840s, the road was improved to permit the passage of wagons; Colonel Sterling Price used the route during the Taos Revolt in 1847. The importance of the Miranda Valley road diminished after the U.S. Army improved a road closer to the Rio Grande in 1875.

Archival research is a necessary first step in identifying the route of an historic trail. The OST was added to the National Historic Trails system in 2002 based on an initial feasibility study that reviewed numerous journals and maps. An exhaustive analysis of all available archival data was completed in 2011.



Comparisons of historic descriptions with modern topographic features are crucial for identifying likely travel corridors, but confirmation of historic routes ultimately requires on-the-ground survey. During the week-long project PCRG and Forest Service volunteers and staff recorded 28 separate trail segments, ranging from ephemeral tracks likely produced by pack strings to deeply incised tracks produced by wagons. The crew also conducted a metal detector of an open park that de Vargas

may have used as an overnight camp, or paraje, in the 1690s. Although artifacts from that early use were not encountered, the crew did document multiple occupations ranging in age from the late 1700s to the early 1900s.

PCRG's Miranda Valley project would have been immeasurably more difficult without the archival and survey work carried out by members of the Taos Archaeological Society and especially by Corky Hawk, whose intimate knowledge of the valley proved invaluable.



Tracing the West Fork

Three main branches of the OST are currently recognized: the Southern Route pioneered by Antonio Armijo in 1829, the Main or Northern Route that passes through southwest Colorado, and the North Branch that followed the Sangre de Cristo Mountains northward into the San Luis Valley.

The West Fork of the North Branch was identified as an alternate route in the OST feasibility study, but was not added to the National Historic Trails system in 2002 because no dence was then available for its use during the trail's period of significance (1829-1848). As proposed, the West Fork ran west of the Rio Grande through Espanola and Tres Piedras, New Mexico, then up the west

side of the San Luis Valley before rejoining the designated North Branch route near present-day Saguache, Colorado.

In 2017, PCRG began a GIS analysis of the proposed West Fork that combines data from historic descriptions and maps with newly acquired LiDAR data. Staff and volunteers then followed-up the analysis with a reconnaissance survey. Although definitive evidence of OST-era use was not encountered, the crew recorded several historic trail segments. The crew also documented numerous stone cairns. Some of them may be associated with nineteenth-century travel; however, most likely reflect stock raising in the 1800s and 1900s.



Geophysical Survey of the Molander Site

Kenneth L. Kvamme

In August, a team from the Archeo-Imaging Lab of the University of Arkansas, including the author, Jo Ann Kvamme, and Ph.D. student Jeremy Menzer, collaborated with the State Historical Society of North Dakota (SHSND) and PCRG to explore Molander Indian Village State Historic Site, a poorly understood eighteenth-century Awaxawi Hidatsa settlement. Although the site was first mapped in 1883, and has been owned by the SHSND since 1930, little is known about the site's occupation

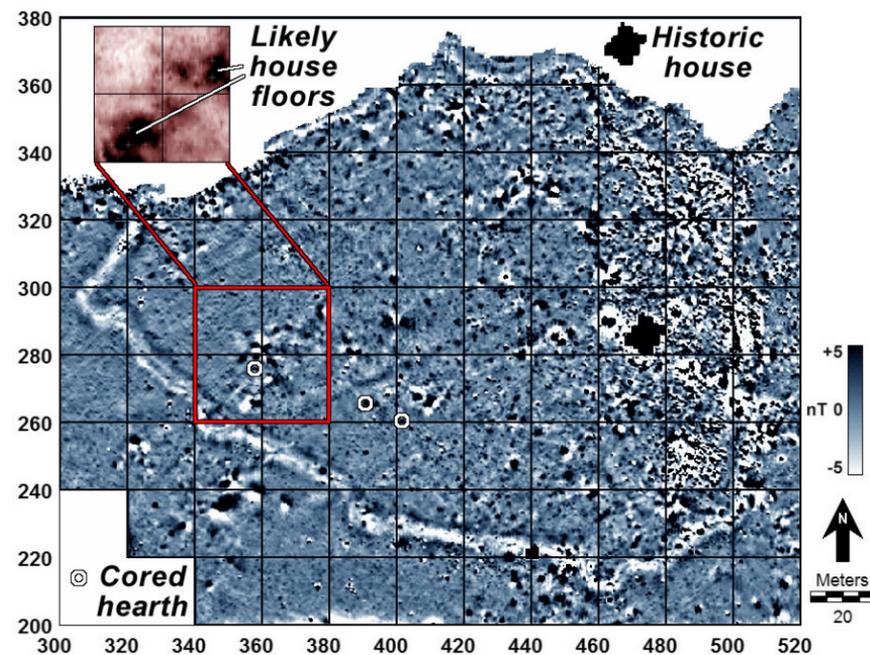
history or material culture. While there is abundant surface evidence that reveals village structure, that evidence is primarily confined to defensive ditches, associated bastions, and an historic occupation atop a portion of the village. Moreover, several historic maps of house distributions within the village exist, but their accuracy cannot be fully confirmed. Our purpose was to employ ground-based geophysical methods in an effort to reveal more precisely the internal structure of the village, including the distribution, arrangement, and forms of houses within. Past work by the Archeo-Imaging Lab

at nearby villages such as Double Ditch, Larson, and Chief Looking's has consistently revealed the utility of magnetic gradiometry for revealing buried village elements—typically hearths, house outlines, and middens—and so the entirety of Molander was surveyed by this method. Sixteen magnetic measurements were collected per square meter (a total of 517,173 measurements) in the 3.2 ha (7.99 acres) surveyed.

The results were a highly detailed map of magnetic variations that include thousands of anomalies. Unfortunately, the pattern of these anomalies with respect to prehistoric features of potential interest is unclear at present. The historic occupants deposited thousands of iron artifacts (e.g., nails, barbed wire, fence staples, and other larger artifacts) on or near the surface that generate robust anomalies that likely obscure subtler ones associated with the prehistoric occupation in the eastern third of the village (see magnetic map below). The historic occupants also plowed the remainder of the village, introducing a great amount of noise to the magnetic signal, and it is quite possible that the plowing may have disturbed shallow archaeological features. Some plow marks may be seen as linear striations in the magnetic data. Anticipated house outlines are not readily

visible in this area. However, many robust point anomalies may be seen in the plowed zone. While some stem from an unusually high number of igneous glacial erratics, which are highly magnetic, many likely represent central hearths associated with former houses. Three such hearths, validated through coring by the PCRG team, are circled in the magnetic map.

These data are presently under intensive analysis. Combined with the excellent digital surface model (see box on page 10) that reveals subtle depressions in the surface likely associated with former houses and the several historic maps that point to their general locations, it should be possible to generate a more detailed map of Molander house distributions by locating central hearths associated with houses in these data. Also promising is a limited electrical resistivity survey conducted in a 40 x 40-m block that reveals the likely floors of two prehistoric houses as high resistance zones (see inset in magnetic map). These locations approximately coincide with historically mapped houses. A limited ground-penetrating radar survey shows similar promise. Given the disturbed nature of the site and the limitations of the magnetic data, it is hoped that future work may utilize these alternative geophysical methods.



Magnetic map of Molander Indian Village State Historic Site. Locations of confirmed hearth features and an early 1880s homestead are shown. The inset (upper left) shows electrical resistivity data.

Mapping Molander

A drone photogrammetry survey of the Molander site was conducted by Arlo McKee and Brent Dell of the University of Texas at Dallas. Similar surveys were also carried out at the Huff and Menoken sites. McKee and Dell used a high-end Pulse Aerospace Vapor 55 unmanned helicopter equipped with two cameras: a near-infrared PhaseOne 50 MP and a visible light Sony aR11 35 MP. They are analyzing the full 3D datasets to produce maps accurate to nearly 1 cm. The Molander site analysis has already revealed over 30 microtopographic depressions that likely represent the locations of Hidatsa earthlodges.



The Pulse Aerospace Vapor 55 ready for action at Molander.

This Old House

Casa de Crestones is a multicomponent site located on the Huerfano River in the Colorado's Wet Mountain Valley. The site consists of a well-preserved Territorial-style adobe house surrounded by light scatters of both Euroamerican domestic debris and American Indian ceramics and chipped stone artifacts. In September, PCRG staff and volunteers mapped the site and excavated two test units adjacent to a newly formed arroyo where charcoal-stained sediment and burned rocks were exposed about 60 cm below the modern ground surface. The project was generously funded by PCRG member Fred Birner, who owns the house.

Although the excavation demonstrated that the buried cultural deposits dated to the 1880s, a concurrent study of architectural timbers conducted by the University of Arizona's Laboratory of Tree-Ring Research



Gabby Smith enjoying the end-of-season weather at Casa Crestones.

revealed that the adobe house was built in the early 1860s, making it one of the oldest homes still in use in Colorado.

2017

By the Numbers

6 projects

95 volunteers

4,480 hours donated

862 acres surveyed

106 sites recorded

The Next 20 Years

2017 was PCRG's 21st field season. During its first 20 years, PCRG grew from a handful of members to well over 100. The scope of PCRG research expanded greatly, as did the number of and variety of institutional partners. What will the next 20 years bring? How will we advance PCRG's core mission to conduct state-of-the-art research, promote scholarly collaboration, and foster public appreciation for the past?

The practice of archaeological research has changed dramatically over the last 20 years. One of the most visible changes has been the increasing reliance on digital technologies, both to conduct archaeological research and to share results. Geophysical surveys, high-precision GPS, GIS analyses, and aerial photogrammetry have become cornerstones of nearly every PCRG project. PCRG researchers are beginning to experiment with 3D modeling of objects and surfaces. In 2017, PCRG launched a new online, peer-reviewed journal called *Reviews in Colorado Archaeology* to promote the development of regional archaeological contexts. *Reviews* is available through the archaeologycolorado.org website, PCRG's new platform for increasing access to archaeological literature and resources for archaeology education.

In some cases, the funds needed to integrate these new technologies into PCRG research can be built into project budgets. However, fully supporting new digital initiatives will also require dedicated funding sources. During the next several years, PCRG will seek out new funding to expand our digital capabilities, including development of a new website that highlights our research results; creation of a PCRG-branded page on a digital repository site, such as the Digital Archaeological Record (tDAR); creation of a PCRG channel on a video sharing site; and expansion of the archaeologycolorado.org webpage. In addition to previously untapped sources, such as the National Endowment for the Humanities, PCRG

will also explore the possibility of corporate donations or sponsorships to support this work.

Another dramatic shift in the practice of archaeological research over the last 20 years has been increasing participation by descendent communities. From its inception, PCRG has sought to promote communication and collaboration between archaeologists and American Indians. There are more opportunities now to integrate indigenous voices into the planning and implementation of archaeological research. Over the next several years, PCRG will greatly expand our collaboration with American Indians and other descendant groups.

PCRG's first 20 years were an unqualified success. With your support and participation, the next 20 will be even better.



Mark Mitchell
Research Director

From the Boardroom

The dedicated volunteers and staff of PCRG contributed to another stellar year for this great organization. On behalf of your board of directors, thank you to everyone who contributed to 2017's success. Recognition is also due to David Purcell and Kimberly Spurr, our outgoing board president and vice-president respectively, who very capably led the board and who will continue to serve the organization as directors. My thanks and recognition also to Carl Falk who served as the board secretary for a long time. Carl relinquished his duties to Craig Lee who gamely took over one of the more thankless jobs in the organization. Carl continues to serve on the board as well.

It is an honor to be selected to lead the PCRG board and it will be a privilege working with Mark and getting to know our wonderful members better. Although relatively new as an

active participant in PCRG, my involvement with the organization dates back to the late 1990s when Metcalf Archaeological Consultants enlisted PCRG to do lab work and reporting on Plains Village sites on North Dakota Highway 1806 and at Scattered Village in the City of Mandan. I continue to value the opportunity to have worked with Stan Ahler and have always looked at PCRG as the go-to organization when Metcalf projects dovetailed with the PCRG mission.

Finally, thank you to those of you who donated to the organization through memberships and generous cash donations. It is very difficult to fund all of PCRG's activities through project revenues alone; many continuing costs are hard to itemize and often fall outside allowed expenditures under the terms of our grants and contracts. Donations, both restricted and unrestricted, are critical to our ongoing success and every dime is put to good use. Mark, Amy, and Britni do an excellent job of using limited resources, and those of you who volunteer on a continuing basis make all the difference in keeping the organization afloat.



Mike Metcalf
President

PCRG Personnel

Board of Directors

President: Michael D. Metcalf, Eagle, CO
Vice-President: Carl R. Falk, Fairfield, PA
Secretary: Dr. Craig Lee, Bozeman, MT
Board Member: Kimberly Spurr, Flagstaff, AZ
Board Member: David E. Purcell, Flagstaff, AZ

Staff

Research Director: Dr. Mark D. Mitchell
Project Archaeologist: Amy Nelson
Lab Supervisor: Britni Rockwell

2017 Research Affiliates

Dr. Rinita A. Dalan, Moorhead, Minnesota
 Jen Deats, Arvada, Colorado
 Carl R. Falk, Fairfield, Pennsylvania
 Charles Haecker, Santa Fe, New Mexico
 Jon Horn, Montrose, Colorado
 Dr. Kenneth L. Kvamme, Fayetteville, Arkansas
 Dr. Rolfe Mandel, Topeka, Kansas
 Marilyn Martorano, Longmont, Colorado
 Arlo McKee, Dallas, Texas
 Cody Newton, Buffalo, Wyoming
 Dr. Richard H. Wilshusen, Boulder, Colorado

Recent PCRG Publications

PCRG reports are distributed at no cost to current members. Information about how to order copies is posted at www.paleocultural.org. (P=paper; D=digital)

Archaeology of the Upper Crossing Stone Enclosures, Saguache County, Colorado (2017; 131 pp.; P/D)
A Class III Archaeological Survey of the Niwot Ridge UNESCO Biosphere Reserve, Boulder County, Colorado (2015; 68 pp.; P/D)
U. S. Forest Service National Curation Study (2015; 81 pp.; D)
2013 Archaeological Survey of the Indian Creek Drainage, San Isabel National Forest (2015; 48 pp.; P/D)
Archaeological Investigations During 2013 at the Pole Creek Stone Enclosures, Saguache County, Colorado (2015; 62 pp.; P/D)
An Archaeological Assessment of the Stillwater Site, Garfield County, Colorado (2014; 50 pp.; P/D)
Archaeological and Geophysical Investigations During 2012 at Fort Clark State Historic Site, Mercer County, North Dakota (2014; 181 pp.; D)
An Archaeological Assessment of the Upper Crossing Site, Saguache County, Colorado (2012; 116 pp.; D)

High-Altitude Archaeology in the Uncompahgre Wilderness: Archaeological Investigations During 2010 at the Uncompahgre Cirque Site, Hinsdale County, Colorado (2012; 76 pp.; P/D)
Agate Basin Archaeology at Beacon Island, North Dakota (2012; 277 pp.; D)
Archaeological, Geoarchaeological, and Geophysical Investigations During 2008 at Chief Looking's Village, Burleigh County, North Dakota (2013; 232 pp.; P/D)
Archaeological and Geophysical Investigations During 2007 at Larson Village, Burleigh County, North Dakota (2008; 104 pp.; P/D)
Geophysical Survey and Test Excavation During 2006 at Larson Village, Burleigh County, North Dakota (2007; 230 pp.; P/D)

PCRG's New Digs

PCRG moved into its Broomfield, Colorado, lab in October 2008. Although that 1,200-square-foot facility served the organization well for many years, the gradual expansion of our field program over the last three years has put an increasing strain on the lab's capacity.

To provide a more efficient work space for the current staff, and to make room for additional employees, PCRG moved to a 1,500-square-foot lab in February 2018. The new space features separate offices for our full-time staff, a larger room for temporary collections storage, and an improved waterscreening station.

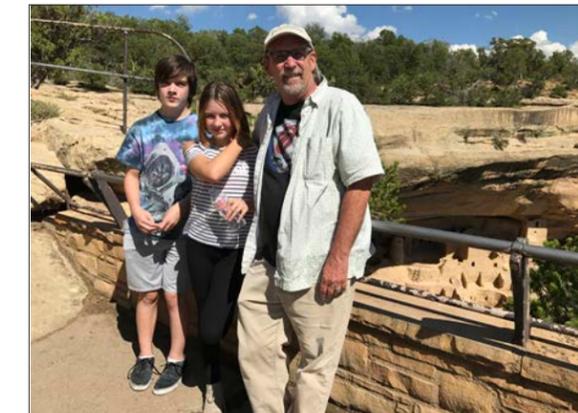
Because the old and new labs are in the same office complex, the addresses are similar. Our prior address was 555 Burbank Street, Unit A, while the new address is 585 Burbank Street, Unit A. The post office box remains unchanged: P.O. Box 745309, Arvada, Colorado 80006.

Rob Bozell

The Nebraska State Historical Society (NSHS) partnered with the University of Iowa, Department of Anthropology (Matt Hill) and the National Park Service, Midwest Archeological Center (Adam Wiewel) during the second year of our SHPO-sponsored Sand Hills Archaeology project. This year, the project focused on limited surface survey along the Middle Loup River near Mullen and reinvestigation of the Humphrey site. Humphrey is a Dismal River culture (Plains Apache) type site tested by the NSHS in the late 1940s. Geophysical survey and limited excavations revealed the site retains well-preserved subsurface earth and timber lodge floors dating to the 1600s.

The NSHS again took the lead in developing Nebraska Archaeology Month 2017. I attended events and made presentations at a variety of venues across the state. I also wrote a couple of blog posts related to the archaeology of early Nebraska in celebration of our sesquicentennial anniversary (1867-2017).

Over the past year, our Highway Cultural Resources Program completed Section 106 investigations and prepared compliance documents on behalf of the Federal Highway Administration (FHWA) and the Nebraska Department of Transportation (NDOT) for over



Bozell: Mesa Verde with ever-so-slightly surly middle-schoolers.

200 proposed transportation projects statewide. Our office also completed several small-scale surveys for the Nebraska Game and Parks Commission and engineering firms.

Our office hosted a NAGPRA compliance consultation summit with tribes from Nebraska and surrounding states and representatives of the NSHS, Corps of Engineers, Bureau of Reclamation, and the University of Nebraska State Museum. The focus of the two-day meeting was disposition of culturally unaffiliated human remains and associated funerary objects.

My travel highlight was a trip with my wife and a couple of our grandkids to Mesa Verde. I



Bozell: The gracious landowners on our Sand Hills excavations loaned us their grass fire water truck for waterscreening. A truly marvelous tool!

PCRG Members' Activities

had never visited this spectacular archaeological landscape. I also made a trip to the Smithsonian to retrieve some human remains and thoroughly enjoyed visits with Bill Billeck, Doug Owsley, and their teams. On the way back to Nebraska, I stopped for a delightful breakfast and long-overdue visit with Carl and Julie Falk at their home near Gettysburg, Pennsylvania.

Carl R. Falk

Through 2017, two PCRG projects took center stage: Chief Looking's Village (CLV) and Upper Crossing (UC). The CLV efforts concentrated on ongoing analysis of vertebrate materials from the 2015 investigation and initial work with samples from the 2016 field effort. In October, partnering with Dr. Holmes A. Semken, Jr. (University of Iowa), I submitted an abstract for a 2018 paper targeting the role of ground squirrels in northern Plains Village subsistence. During 2017, I worked with Mark Mitchell to complete portions of a report on the 2014 UC fieldwork (Mitchell and Falk 2017, PCRG Research Contribution 99). We also began work for an article on Middle and Late Holocene settlement and subsistence within south-central Colorado, based in part on research at UC. In December, also with Mark, I analyzed faunal materials from Venado Enojado, a Late Archaic period site in the Arkansas River valley near Johnson Village, Colorado; a brief report will be submitted in early 2018.

Other PCRG-related projects include: Archeoblitz (an examination of fish & herp remains from Knife River Indian Villages National Historic Site, with PCRG member Rob Bozell), and Beadmaker (analysis of non-mammalian bone from a late prehistoric Mandan campsite on the Heart River with Brooke Morgan and Fern Swenson, State Historical Society of North Dakota. Fern and Brooke are PCRG members).

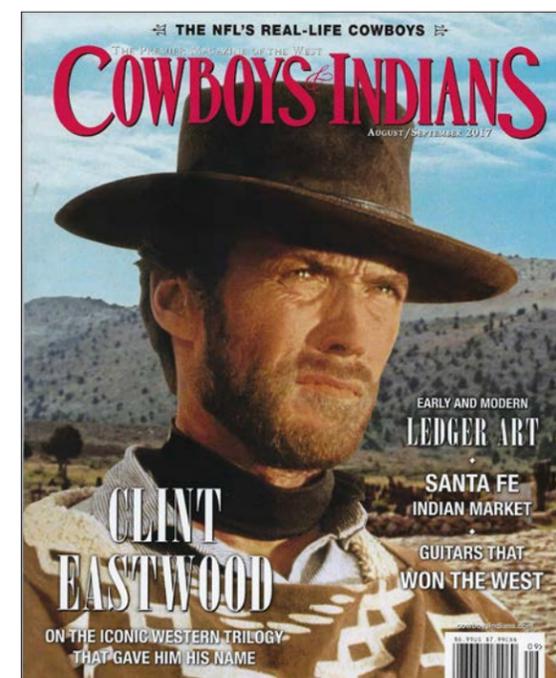
Independent consultations for 2017 include analysis of fish & herps from Big Village, an historic Omaha community (for the Nebraska

State Historical Society, coordinated by Nebraska State Archeologist Rob Bozell) and work with vertebrate remains from 2017 tests by Michael Fosha, South Dakota Assistant State Archaeologist (and PCRG member), at Onnast Village, a late prehistoric site in northeastern South Dakota. Additional written contributions, editorial tasks, bone identifications, and other assistances were provided during 2017 for projects in Colorado, Kansas, Nebraska, North Dakota, and South Dakota.

Kimberly Field

A glimpse into a writer's life—namely, PCRG member Kimberly Field. Here are some things that other members may find of interest.

My feature article on the fine points of collecting Plains Indian ledger art appeared in the August/September 2017 Arts issue of *Cowboys and Indians* magazine. Ledger art



Field: Issue of *Cowboys and Indians* with feature article on Plains ledger art.

PCRG Members' Activities

offers a snapshot of life on the Plains during the Reservation period. While ledger art often recounts warriors' feats of daring, it also reveals social interactions, material culture, and subtle statements of resistance by the artists. Complete ledger books are rare and tell a complex story. The genre lives on. Modern ledger artists present a wry commentary on what it means to be Native today.

My review of *Mesa of Sorrows: A History of the Awat'ovi Massacre* appeared in the Spring 2017 issue of *Southwestern Lore*. I highly recommend this book.

I am currently researching the history of Mosquito Lagoon for a private client. The lagoon is a mashup of mangroves, tidal creeks, and the Intracoastal Waterway between New Smyrna Beach and Cape Canaveral on Florida's east coast. Its long history includes dense habitation by Timucuan Indians, whose tall shell middens line its rims. Civil War blockade runners and Cuban rum runners took refuge in its marshy islands, waiting for the tides to turn on a dark night so they could move their illicit cargos through the treacherous inlet. It is a tale of vanishing islands, bootleggers, pig farmers, orange growers, WWII German U-Boats, and astronauts—what's not to like?

I am also hard at work on my modern history of Arvada, Colorado. No blockade runners in Arvada (at least none that I can find), but



Field: Florida shell midden.

there were nagging concerns about spies at Rocky Flats. It's due out in late 2018. Perfect for Christmas giving!

Dale and Barbara Henning

This year, while not actually thinking about it, we must have followed the advice of an old friend who urged us to "keep traveling." And that is what we have done. In May, we took a small ship cruise from Athens with stops in Montenegro, Croatia, Albania and, finally, a week in Venice. A full adventure, complete with an interesting encounter with bedbugs in our first Venice apartment! Undaunted, in September we cruised the Volga and several other bodies of water from Moscow to St. Petersburg, then rested up in Helsinki, Finland, with a side trip to Tallinn, Estonia. A great and memorable trip. Then, on a whim, we took our final cruise in December, visiting Cienfuegos and Havana—another interesting cultural experience.

On the archaeological front, our May cruise interfered with our attending the grand opening of Good Earth State Park near Sioux Falls, South Dakota. But we visited shortly upon return. They have a wonderful facility and great exhibits including a 'full size' cardboard cutout of myself with trowel in hand speaking words of wisdom at the touch of a button. I gave two talks about Blood Run there a few weeks later, ending much pleasurable involvement with that project over the past three years. A small study group in Milwaukee focused on the early contact period (1620-1640) in eastern Wisconsin offered the opportunity to learn and understand more about the history and archaeology of that region and the early activities of the Winnebago, Menominee, Osage, and other tribes there. An article, with Colin Betts, titled "Aberrant Earthworks? A Contemporary Overview of Oneota Mound Ceremonialism" was recently published in the *Wisconsin Archeologist*. Work continues on manuscripts on the Oneota occupations of the Correctionville (Iowa)

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villages, the Beals Late Woodland, and Great Oasis occupations of the West Broken Kettle site.

We continue to enjoy great good health and enthusiasm, a great gift. Next year should see more travel. We'll go to Toronto to see son Ben and his wife in the spring and yet another cruise, this time to the coast of Norway, north of the Arctic Circle, then to western Scotland and back to London. And, of course, see you all at the Plains Conference!

Craig Johnson

This year wraps up another busy one for me, with continuing work on my Middle Missouri chipped stone book. I sent it out for informal review to about 10 archaeologists early in the year. I received a number of very good substantive comments, including some suggestions for structural changes. By mid-year, the University of Utah Press sent it to two archaeologists for peer review and accepted it pending revisions. Their very helpful comments came back as I retired from 19 years of state service with the Minnesota Department of Transportation on October 3. The next day I headed out to the Bismarck Plains Conference with Guy Gibbon. I contributed to the Ray

Wood tribute session, focusing on photographs of Ray from the 1978 Archaeological Strategy Symposium field party at the Knife River Indian Villages in North Dakota hosted by Stan Ahler.

My retirement could not have been timelier, since I undertook a number of major revisions of my book manuscript. These included an expanded section on the extensive trade in Knife River flint among the Initial Middle Missouri villages from A.D. 1000-1300. I also constructed eight photographic plates illustrating various tool stones, tool technological classes, and flake types. Britni Rockwell of PCRG was very helpful in constructing these and a number of maps for the book. A completed, final manuscript is due by May 1, 2018 with a 2019 publish date.

I also volunteered for a one-week PCRG session at Molander Village, focusing on a geophysical and aerial photographic/digital elevation survey of the site. Weather is always a concern during fieldwork, but we avoided any storm-related calamities while staying at a very nice campground within Cross Ranch. For the first time, I assisted with the geophysics "rope line" pounding and removing stakes, and moving transect tapes. With Ken Kvamme's identification of anomalies on paper maps, Paul Sanders, Rebecca Wallace, and I spent several

Johnson: Probing for features at Molander Village. From left, Rebecca Wallace, Paul Sanders, Craig Johnson.



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days probing for features. Many turned out to be uninteresting, but we did locate a number of fire hearths and several pit features containing relatively high numbers of artifacts.



Johnson: Assisting with the geophysics "rope line" at Molander Village.

Ruthann Knudson

During 2017, I completed a draft booklet, *Nebraska Paleoindians*, now in press at Nebraska State Historical Society, Lincoln. I also continued to teach Montana Indians (3/year) online at Great Falls College, Montana State University, and this year I added Native American Beliefs and Spirituality (2/year) to my repertoire. I've completed telecommunications tower cultural resource assessments in Montana, Idaho, and Washington. I've written cultural resource sections for a proposed Weapons Storage Facility Environmental Assessment (EA) at Malmstrom Air Force Base here in Great Falls and for an EA to riprap an eroding helipad on America's first Ace in the Hole managed by Malmstrom; it was active ready during the 1962 Cuban Missile Crisis. I've collected paleoenvironmental, precontact, and historic information on the Upper Missouri River area between Fort Benton and the Gates of the Mountain for a proposed

national heritage area; we're working on the area's feasibility study now. A local collector brought in a small array of artifacts from far western Great Falls that include a Clovis/Goshen point and one complete and one partial large Oxbow point, and I'm working on getting that illustrated and written up. I'm chairing a First Peoples Resources Committee within our local Great Falls/Cascade County Historic Preservation Commission and we're looking at interpretive signage at the Pelican Lake Vivendi site, the Sun River site, and the Missouri River ford probably used for millennia to move Smith River chert materials from our area north into Alberta (where it becomes "Montana chert"). We'll have Native advisors/consultants helping us develop the signs. I've also been sitting on two polyhedral obsidian cores found along a Missouri River oxbow just south of Great Falls. Richard Hughes has just agreed to source them and I have to get them illustrated and written up. Too much to do!

Brooke Morgan

In 2017, I oversaw the first formal testing of the Jennie Graner site (32MO12) at the request of the U.S. Army Corps of Engineers. Jennie Graner is an Extended Middle Missouri Mandan village located just northwest of Huff Indian Village State Historic Site (32MO11) in Morton County, North Dakota. Unlike Huff, which has an excellent level of preservation, historic and modern land use has severely impacted near-surface deposits at Jennie Graner. A combination of auger probing, cutbank feature salvage, and geophysical survey (performed by PCRG Research Affiliate Ken Kvamme and University of Arkansas graduate student Jeremy Menzer) resulted in the identification of at least nine probable long-rectangular house structures and hundreds of potential storage pit features. Radiocarbon dating of short-lived botanicals and cultivars indicates Jennie Graner was occupied between A.D. 1350 and A.D. 1400, about 75-100

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years earlier than Huff. We hope to open test units targeting interior and exterior storage pits and extend the boundaries of the magnetometer survey.

Speaking of Huff, in October fellow PCRG member Paul Picha and I gave a post-Plains Conference tour of On-A-Slant, Huff, and Menoken villages. Three Affiliated Tribes historian Amy Mossett was at hand to share Mandan oral history relating to the sites. About 35 people attended and we had beautiful weather for an outing along the Missouri River. We were especially pleased that Ray Wood was able to join and regale us with fieldwork stories from the River Basin Survey years.



Morgan: W. Raymond Wood holding court at Huff Indian Village State Historic Site. (l-r: (back row) PCRG Research Director Mark Mitchell, PCRG Research Affiliate Ken Kvamme, PCRG member Adam Wiewel, Steve DeVore, (front row) PCRG member W. Raymond Wood, Pat Trader.

Kimberly Spurr and David Purcell

Professional milestones were numerous for us during 2017, unfortunately overshadowed by the passing of Kim's mother Wendy in June. Among the 11 projects Museum of Northern Arizona's Archaeology Division currently has underway for eight different National Park Service units, these are the highlights.

David completed a draft Administrative History of Arches National Park, which has been reviewed by former park personnel. Further research and revisions are currently underway. The second season report and data compendium for the Wupatki Petroglyph Project was completed and submitted; the third and final season report and data compendium are completed and will have been submitted to the National Park Service by the time you read this. David presented on this project at three different conferences (see below). Research on archaeoastronomical petroglyph panels at Horseshoe Mesa are ongoing, but per our research permit, we relocated one remote timelapse camera and removed one camera mount in December.

Fieldwork at Navajo National Monument concluded this year with two field sessions in the Keet Seel unit, home to the largest cliff dwelling in Arizona. In June, David directed survey of the entire canyon bottom in the unit, recording five new sites including prehistoric



Spurr and Purcell: Field work at Navajo National Monument.

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Spurr and Purcell: Keet Seel Pueblo at Navajo National Monument.



Spurr and Purcell: The crew in action on Skeleton Mesa.

hand and toe holds ("Moqui steps") at four sites. Three of these sites form complete travel routes from the canyon bottom to the top of Skeleton Mesa, 800 feet above. In October, Kim directed survey on the mesa top. We backpacked from the canyon bottom to the top, and more than three miles to our campsite in the NPS unit. NPS personnel, including monument archaeologist Greg Luna-Golya, packed in extra water for us to use during our four-day survey. We identified and recorded another five new sites on top. We are currently working on completing the project report, but can state that the number of sites in the entire monument increased 54 percent as a result of this project, and we have clear evidence of occupation in Navajo National Monument from the Archaic Period continuously to A.D. 1300, when the region was no longer occupied. Kim's uncle Gary Matlock was the monument archaeologist in the 1960s, and he asked us over Thanksgiving how the project had gone. He seemed surprised at the number of new sites, but Kim pointed out that "when you have the biggest cliff dwellings in the Kayenta region, you don't

look around to see what else is there.” In fact, we found a number of large habitation sites near each of the cliff dwellings.

We also have completed a review of 86,000 pieces of faunal bone from 11 NPS units looking for human remains (we found 220 pieces), and conducted additional fieldwork in Glen Canyon National Recreation Area as we transitioned from two pilot recording projects to a much more extensive project that will revisit at least 240 sites around Lake Powell. Amidst all of this, we took a trip to Borneo in May to experience the incredible wildlife of southeastern Malaysia, a marvelous country. 2018 promises to be at least as busy.

W. Raymond Wood

This has been an exciting and productive year for me. First of all, the South Dakota Historical Society Press published a long-standing project: *The Fort Tecumseh and Fort Pierre Chouteau Journal and Letter Books*, transcribed and annotated by Michael M. Casler (of Williston, North Dakota) and myself. Our transcription and annotation of the Fort Union Letter Book remains in limbo, but a publication source seems imminent. The two of us have also completed a brief history of the Apple River trading post. This little-known post was at the mouth of Apple Creek, not far south of the Bismarck Airport, but it has never been located. Our paper will be submitted to *North Dakota History*. I’ve also completed a second paper, a biography of fur trader Joseph Graveline (and the subject of my talk at the Plains Conference in Bismarck last fall) that has been submitted to *South Dakota History*.

I also attended what is likely my last Plains Conference—my 61st—the one held in Bismarck. The drive up with Larry Grantham and Patricia Treat was in itself very enjoyable. Once there, Fred Schneider and Kacy Hollenback had arranged a special all-afternoon session in my honor in which dozens of my friends and

colleagues got up to speak on my role in Plains archaeology and in their lives. The session concluded with a special presentation by Mandan-Hidatsa scholar and historian Amy Mossett. She presented me with a magnificent Star Quilt to honor my many contributions to Mandan culture and history. The star pattern is a very popular one among the tribes of the Northern Plains; you can judge its attractiveness for yourself. Lastly, the field trips to visit the Menoken and Huff sites brought back fond memories of the time I spent at both of them, as did the visit to On-a-Slant village, although I never dug there.



Wood: *The Star Quilt presented by Amy Mossett (L) and Mary Baker.*

Members' Recent Publications

The following contributions represent a partial list; technical reports, conference papers, and theses are not included. PCRG members are listed in **bold**.

Casana, Jesse, **Adam Wiewel**, Autumn Cool, Austin Chad Hill, Kevin D. Fisher, and Elise J. Laugier
 2017 Archaeological Aerial Thermography in Theory and Practice. *Advances in Archaeological Practice* 5(4):310-327.

Casler, Michael M., and **W. Raymond Wood**
 2017 *The Fort Tecumseh and Fort Pierre Chouteau Journal and Letter Books 1830-1850*. South Dakota Historical Society Press, Pierre.

Colin M. Betts and **Dale R. Henning**
 2016 Aberrant Earthworks? A Contemporary Overview of Oneota Mound Ceremonialism. *The Wisconsin Archeologist* 97(2):101-119.

Davis, Carl M.
 2017 Effects of Climate Change on Cultural Resources in the Northern Rockies. In *Climate Change and Rocky Mountain Ecosystems*, edited by Jessica E. Halofsky and David L. Peterson, pp. 209-219. Advances in Global Climate Change Research 63 Springer, Cham, Switzerland.

Davis, Leslie B., John W. Fisher, Jr., Douglas W. Owsley, David G. Mogk, Richard E. Morlan, Richard L. Jantz, and **Kerry Lippincott**
 2017 An Avonlea Inhumation at Split-Rock Ridge, Big Dry Creek Valley, Eastern Montana High Plains. *Plains Anthropologist* 62(241):32-66.

Geib, Phil R.
 2017 Mesoamerican Flat Curved Sticks: Innovative “Toltec” Short Sword, Fending Stick, or Other Purpose? *Ancient Mesoamerica*:1-18.

Geib, Phil R., Carrie C. Heitman, and Ronald CD Fields
 2017 Continuity and Change in Puebloan Ritual Practice: 3,800 Years of Shrine Use in the North American Southwest. *American Antiquity* 82(2):353-373.

Holen, Steven R., Thomas A. Deméré, Daniel C. Fisher, Richard Fullagar, James B. Paces, George T. Jefferson, Jared M. Beeton, Richard A. Cerutti, Adam N. Rountrey, Lawrence Vescera, and **Kathleen A. Holen**

2017 A 130,000-year-old Archaeological Site in Southern California, USA. *Nature* 544:479-483.

Holliday, Vance T., Eileen Johnson, and **Ruthann Knudson** (Editors)
 2017 *Plainview: the Enigmatic Paleoindian Artifact Style of the Great Plains*. University of Utah Press, Salt Lake City.

Kováčik, Peter, and **Linda Scott Cummings**
 2017 Reconstruction of Woodland Vegetation and Firewood Exploitation in Nine Mile Canyon, Utah, Based on Charcoal and Pollen Analysis. *Quaternary International* 463, Part B:312-326.

Kvamme, Kenneth L.
 2017 A Decade of Geophysics and Remote Sensing in North American Archaeology: Practices, Advances, and Trends. In *Archaeological Remote Sensing in North America: Innovative Techniques for Anthropological Applications*, edited by Duncan P. McKinnon and Bryan S. Haley, pp. 215-230. University of Alabama Press, Tuscaloosa.

Lee, Craig M., and Ted Goebel
 2016 The Slotted Antler Points from Trail Creek Caves, Alaska: New Information on Their Age and Technology. *PaleoAmerica*. 2(1):40-47.

Lynch, Elizabeth M.
 2017 Bedrock Ground Stone Features on Chacuaco Creek, Southeastern Colorado. *Plains Anthropologist* 62(243):219-246.

McBrinn, Maxine E., and Bradley Vierra
 2017 The Archaic Period. In *The Oxford Handbook of Southwest Archaeology*, edited by Severin Fowles and Barbara Mills, pp. 231-245. Oxford University Press, Oxford.

Tronstad, Lusha, Phil Mathias, Oliver Wilmot, Alan Cvancara, and **Kerry Lippincott**
 2017 *Native Mussels of Wyoming*. Biodiversity Institute, University of Wyoming, Laramie, Wyoming.

Wiewel, Adam S.
 2017 Examining Agricultural Surplus at Huff Village, North Dakota: Combining Archaeological and Remote Sensing Data. In *Archaeological Remote Sensing*

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in North America: Innovative Techniques for Anthropological Applications, edited by Duncan P. McKinnon and Bryan S. Haley. University of Alabama Press, Tuscaloosa.

Wilshusen, Richard H.

2017 Early Pueblo Great House Communities and Their Leaders: The Transformation of Community Leadership in the Mesa Verde and Chaco Regions, A.D. 625–1025. In *Feast, Famine, or Fighting? Multiple Pathways to Social Complexity*, edited by Richard J. Chacon and Ruben G. Mendoza, pp. 249-267. Studies in Human Ecology and Adaptation, vol 8. Springer, Cham, Switzerland.

Wilshusen, Richard H., and Donna M. Glowacki

2017 An Archaeological History of the Mesa Verde Region. In *Oxford Handbook of the Archaeology of the American Southwest*, edited by Barbara J. Mills and Severin Fowles, pp. 307-322. Oxford University Press, New York.

Wilshusen, Richard H., Michael Heilen, Wade Catts, Karyn de Dufour, and Bradford Jones

2016 Archaeological Survey Data Quality, Durability, and Use: Findings and Recommendations. *Advances in Archaeological Practice* 4(2):106-117.

Archaeology Online

Digital technologies and the internet are fundamentally altering the ways archaeologists produce and disseminate their research results. To take advantage of the new digital environment, PCRG has launched a new website called Online Resources for Colorado Archaeology and Historic Preservation (ORCA).

Available at www.archaeologycolorado.org, the site is an open-access collection of resources and tools for academic research, cultural resources management, and heritage education in Colorado and adjacent states. The site features a digital library and a new scholarly journal called *Reviews in Colorado Archaeology*. The site also includes a variety of online resources for educators and students.

Major funding for development of the site was provided by a History Colorado - State Historical Fund grant, with matching

funds provided by the Colorado Council of Professional Archaeologists (CCPA), the Colorado Archaeological Society, and other organizations.

A central objective of the ORCA project is to create a digital space for publishing archaeological contexts. Archaeologists working in Colorado have for many years relied on a series of context documents published by CCPA. Although they remain valuable tools, those contexts are now in need of renewal. The ORCA website offers a cost-effective and timely way to publish incremental updates the existing contexts.

A second goal of the ORCA project is to expand public access to high-quality information about the state's history and prehistory, including online resources and non-technical summaries of the state's archaeology.