Organization Report for 2009

Archaeology of the Saguache Creek Valley, Colorado

Mark D. Mitchell and Carl R. Falk

Since its inception, PCRG has carried out archaeological and paleoenvironmental research in Colorado. Past projects include studies of packrat middens in the San Luis Valley and on the Routt National Forest and test excavations at the Willow Bunker site on the Pawnee National Grassland. This year, we continued our commitment to fieldwork in the Southern Rocky Mountains at the Upper Crossing site, a large, multi-component locality on Saguache Creek in the northwest corner of the spectacular San Luis Valley. The site is managed by the San Luis Valley Public Lands Center (SLVPLC), a "Service First" partnership authority between the Bureau of Land Management and the U.S. Forest Service. Funding for PCRG's work comes from a BLM Assistance Agreement and from a State Historical Fund grant awarded by the Colorado Historical Society.

Although archaeologists first became aware of the many large, complex sites dotting the Saguache Creek valley in the 1930s, they remain poorly understood today. PCRG's primary objectives at Upper Crossing, one of the best-preserved sites in the area, were to produce a comprehensive record of the structures, features, and cultural deposits comprising the site and to document their current condition. The field investigation focused on three main tasks: pedestrian survey to better define site boundaries; mapping and photography to document stone structures; and limited subsurface testing to assess the depth, extent, and content of cultural deposits actively eroding in one part of the site. Field investigations were carried out during a 6-day period in early June by PCRG staff and volunteers, and archaeologists from the SLVPLC. A total of fourteen people devoted 64 person-days to the effort, with more than half of this time donated.

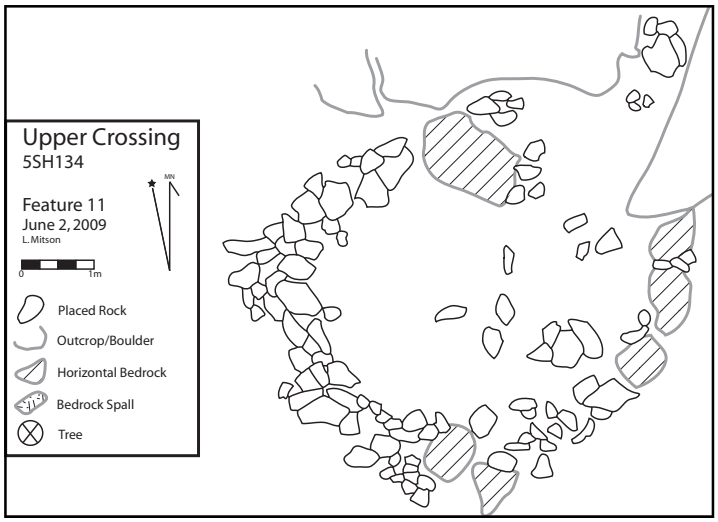


Photo and plan map of Feature 11 at the Upper Crossing site.

The Upper Crossing site preserves evidence of at least four occupation phases. Intensive use of the area—represented by a sequence of five superimposed hearths and a dense scatter of animal bones, stone tools and flaking debris—began at least by Middle Archaic times, perhaps 4,500 years ago, and continued into the Late Archaic period. A second intensive occupation, represented by at least 29 stone enclosures grouped into two separate clusters, likely occurred between A.D. 500 and 1200. The site was used a third time in the 1700s or 1800s, probably by one or more Ute bands. This occupation is represented by at least 15 peeled ponderosa

pine trees and three possible eagle-trapping pits. The fourth and final occupation took place in the twentieth century and is represented by the existing U.S. Forest Service administrative facility, which was built between 1920 and 1927 and originally housed the Supervisor's office of the Cochetopa Forest Reserve. In addition to these four major occupations, ephemeral evidence points to sporadic use of the area by Late Paleoindian and Puebloan groups.

A culturally peeled tree at the Upper Crossing site, probably dating to the nineteenth century.

The artifacts and features documented in 2009 are scattered over an area of roughly 9 ha (22.2 ac). However, pedestrian survey beyond the nominal boundaries of the site reveals a complex archaeological landscape, indicative of frequent visits by many different groups, undoubtedly for a variety of reasons. A combination of factors likely drew people to the Saguache Creek Valley. It is an important travel corridor, linking the Gunnison River Valley and the western slope of the Rockies with the San Luis Valley. The area encompasses a complex ecological mosaic, including an extensive perennial riparian zone. Numerous sources of high-quality lithic raw material are located nearby.

Laboratory analyses of the artifacts and other materials collected in 2009 are underway. PCRG is also studying a collection recovered during a testing project carried out by the U.S. Forest Service in 1999. Analysis of the stone tools and flaking debris shows that the site's residents used a wide variety of raw materials, including rhyolite, chert, quartzite, chalcedony, basalt, and petrified wood. Late Prehistoric peoples, responsible for building the stone enclosures, exploited many of the same sources as their Middle and Late Archaic predecessors, but the technologies they used to produce tools differed dramatically. Archaic flintknappers spent much of their time producing large, well-made bifacial cutting tools. Late Prehistoric technology, by contrast, focused mainly on expedient flake production using unprepared cores. Late Prehistoric flintknappers also used bipolar reduction to produce small flake tools.

A Late Archaic dart point from the Upper Crossing site.

A number of animal species are represented in the small faunal assemblage from the site. Large artiodactyls (bison or elk) are represented by a single identifiable specimen, a fragment of a proximal phalange. Based on their size, several long bone fragments from the Late Prehistoric deposit also are likely from large artiodactyls. Smaller artiodactyls are better represented in the sample, primarily by fragments of metapodials and phalanges, but also by hyoid, vertebra, and long bone pieces. This region of Colorado hosts several small artiodactyls: mule or black-tailed deer, pronghorn, and bighorn sheep. Thirteen specimens, nearly all of them burned, are tentatively identified to the squirrel family (Sciuridae). At least nine sciurid species are known from the area, ranging in size from the least chipmunk to Gunnison's prairie dog and the yellow-bellied marmot. Morphologically, the Upper Crossing specimens compare well with modern prairie dog, although several other possibilities, such as Abert's squirrel, cannot be ruled out. Four bone tool fragments are included in the Archaic period sample. One of the four is a distal fragment of an awl, punch, or knapping tool.

PCRG will return to the Upper Crossing site in 2010. Information about this year's investigation and how you can participate is given on the accompanying Fieldwork Opportunities Guide and on our website at <www.paleocultural.org/participation.htm>.

Four corner-notched arrow points associated with Late Prehistoric stone structures at the Upper Crossing site. Drawing by Marvin Goad.

Site Reassessment at the Lost Canyon Archaeological District, Colorado

Kimberly Spurr

In early June of 2009, PCRG members Kimberly Spurr and Stacey Bennett spent several days evaluating sites in the Lost Canyon Archaeological District on the San Juan National Forest in southwestern Colorado. The district was formed in 1988 to encompass more than 25 sites, including one small cliff dwelling containing at least six rooms and a masonry kiva. Most of the sites consist of small masonry habitation units or storage areas within low rock shelters, as well as a few larger open camps and multi-room masonry sites on the mesa top overlooking the canyon. Although several historic ranches are included in the district, most sites date to the late Pueblo II or early Pueblo III period (A.D. 1050 – 1200).

Under contract to the San Juan National Forest, the PCRG crew visited and completed condition assessments for 14 prehistoric archaeological sites in Rock Canyon and Lost Canyon. At each site, we compared the original documentation to the current manifestations, took photos to illustrate the current condition of the site and architectural features, took GPS readings to update the site location data, and recorded any recent impacts due to natural processes or visitation. Monitoring forms and updated location information were submitted to the Forest Service to facilitate long-term management of these sites. Overall, we noted minimal change in site condition, the most common being rodent activity that has destabilized masonry walls. We found little evidence of visitation, and no vandalism or looting activity. The low visitation may be due to the extremely dense oakbrush that covers the canyon slopes and makes access difficult, even for determined archaeologists!

Kiva wall at Poison Ivy House in the Lost Canyon Archaeological District.

As part of the same project, Kim and Stacey took part in the 2009 Youth Summit Southwest Archaeology Experience, a multi-agency field program for high school students from communities throughout Colorado. The program aims to expose students to various aspects of archaeology, including research goals, field methods, museum curation and exhibit preparation, and heritage tourism. We spent one day teaching students about archaeological survey and site recording, and how survey data can be used to formulate a focused excavation project. Other program leaders from the U.S. Forest Service instructed students on site investigation using geophysical techniques, site stabilization, and site interpretation for tourism. The exercise was deemed a success and we had substantial positive feedback despite the unexpected rainstorm that drove us from the field and into the local high school gym, where we repeatedly surveyed the basketball court to locate rubble mounds and a variety of artifacts.

Stacey Bennett recording a masonry pueblo overlooking Lost Canyon.

Chief Looking's Village Lab Analyses

Mark D. Mitchell and Carl R. Falk

The Chief Looking's Village project moved into the analysis phase during 2009. In the spring, six students from the University of Colorado processed and sorted waterscreen samples from the 2008 excavations and PCRG member Ken Kvamme finished analyzing the magnetic gradiometry data. During the summer and fall, PCRG members across the country began specialized analyses of artifacts and other materials from the site. Carl Falk is looking at the modified and unmodified vertebrate remains. Bob Nickel is examining the seeds. Paul Picha and Doug Wurtz are studying the modified and unmodified shell. Chris Roos is conducting a micromorphology study of natural and cultural sediments.

Though lab work is ongoing, some preliminary statements can be made about the age and content of the site. Several lines of evidence point to a brief occupation. Unlike many other settlements in the Heart River region, Chief Looking's Village lacks the massive, encircling midden mounds indicative of long-term use. In fact, a prominent pre-village soil was encountered just 30 cm below the modern ground surface in two excavation units. Just one fortification ditch surrounds the site, whereas the defensive features surrounding most of the Heart River towns were rebuilt and reconfigured repeatedly.

The village likely was founded in the mid-1500s. The weighted mean of two radiocarbon assays from the base of Feature 3, an oval, trash-filled borrow pit, produced an age of 348±26 B.P. Owing to a prominent "plateau" in the radiocarbon calibration curve for this period the corresponding calendar dates span nearly two centuries, from 1450 to 1640. However, no trade goods have been found at the site, suggesting that it was occupied before about 1625. Moreover, the pottery assemblage lacks both Stanton and Sanger wares, as well as tool-impressed, braced straight rim vessels, all of which are thought to be characteristic of late fifteenth to early sixteenth century settlements in the Heart River region. Overall, the assemblage is strikingly similar to the Time Period 3 assemblage from On-A-Slant Village, which dates to the late 1500s and early 1600s. Beautifully crafted Le Beau Recurved vessels are especially prominent in both assemblages.

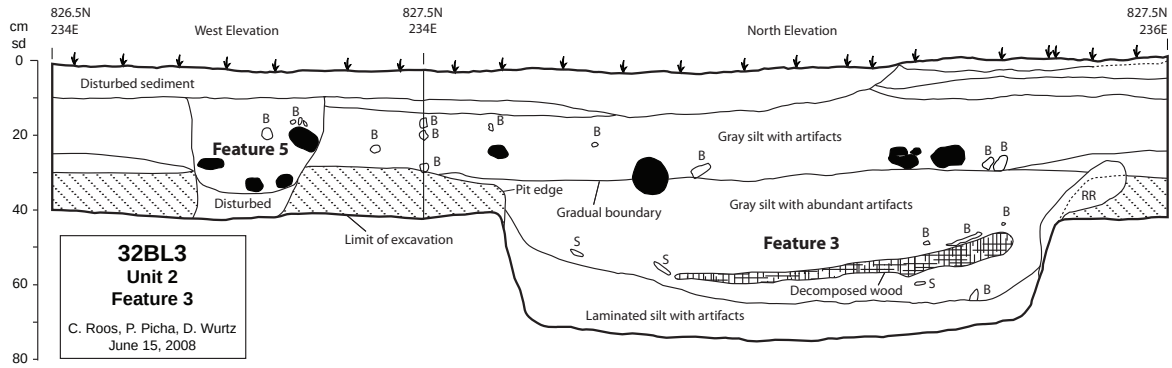
Artifacts from Chief Looking's Village: top, ceramic rim sherd; bottom, decorated antler bow guard fragment.

The mammal bone sample, which comprises more than 1400 identified specimens, includes the remains of cottontail, jackrabbit, ground squirrels, beaver, large canids (domestic and wild), swift fox, badger, striped skunk, bobcat, elk, deer, pronghorn and bison. Bison, deer, large canids, swift fox, cottontail and jackrabbit are well represented but, when measured by counts alone, the remains of large ground squirrels are most numerous. Ground squirrel bones, representing several dozen individuals, are primarily associated with Feature 1, a shallow, straight-sided pit on the north side of the village. Nearly 10 percent of the squirrel bone is burned.

The sample of 221 identified bird bone fragments is dominated by small-bodied passerines and woodpeckers but also includes specimens representing grouse, hawks and eagles, various ducks, small waders or shorebirds, raven and magpie. Nearly 20 percent of the identified bird bones are burned. An interesting feature of the bird sample is the presence of elements representing relatively young, immature and subadult individuals. Further analysis of these remains, along with other indicators, may provide useful insights regarding seasonality.

Work is also underway on several thousand pieces of fish bone. Identified taxa include goldeye, channel catfish, carpsucker, buffalo sucker, white sucker, creek and flathead chub, and freshwater drum; large-bodied suckers dominate the sample. So far, analysis of the 2008 vertebrate sample, as well as the limited sample collected in 1934 by the Civilian Conservation Corps, suggests an intensive use of locally available resources, including those associated with the Missouri River floodplain as well as nearby uplands.

The range of raw materials represented in the chipped stone flaking debris sample mirrors that of contemporaneous assemblages from Double Ditch and Larson vil-



West and north profiles of Unit 3 and Feature 3, Chief Looking's Village.

lages. Just over one-third of the collection consists of smooth gray Tongue River silicified sediment (TRSS), while about half consists of Knife River flint (KRF). These two materials appear to have been used in somewhat different ways, with TRSS used mainly for large patterned bifaces and flake tools and KRF used for projectile points and patterned flake tools. Exotic materials from sources to the west and southwest are also represented. The most common exotic raw material is porcellanite, which likely was obtained from quarries in southwest North Dakota, southeast Montana, or northwest Wyoming.

A final report on the project is anticipated in 2010 and will be available to download from PCRG's website at <www.paleocultural.org/pubs.htm>.

Reinvestigations at the Challis Bison Kill Site, Custer County, Idaho

Kenneth P. Cannon

In the early 1970s, B. Robert Butler of Idaho State University published a series of articles on bison in Idaho. A key site in these articles was the Challis Bison Kill, which he believed dated to the middle of the nineteenth century and was the westernmost known jump. Recent efforts by Ken and Molly Cannon, supported by the BLM, the Earthwatch Institute, the Idaho Heritage Trust, and PCRG, have challenged these original interpretations.

Reanalysis of the 1970s material raised doubts about some of Butler's initial interpretations. For one thing, direct radiocarbon dating of bone and other associated organics indicate the kill episode likely occurred between 850 and 900 radiocarbon years ago (cal A.D. 1154 – 1208), not in the 1800s. Recovery of a Desert Side-Notched projectile point also suggests the site is not historic, but the radiocarbon date would indicate an earlier initial date for this point type than has been assumed.

To place this site in a larger environmental context, the Cannons have assembled an interdisciplinary research team that includes Dr. Andrea Brunelle (University of Utah), William Eckerle (Western GeoArch Research), and Dr. Neal Haskell (St. Josephs College). Dr. Richard Hughes (Geochemical Laboratory) has conducted geochemical analysis of obsidian artifacts from the site, revealing a wide range of geochemical types, from Obsidian Cliff in Yellowstone National Park to Timber Butte on the western Snake River Plain. Fieldwork at the site was completed in 2008 and University of Colorado work-study students employed by PCRG are currently sorting and quantifying waterscreen samples from the site. The Cannons will continue analysis and write-up of the results in 2010; their final report is expected in 2011.

Top, view to the north and east of the Challis Bison Kill site complex; bottom, high school science students funded by the Earthwatch SCAP program excavate at Challis in 2008.

Beacon Island Analysis Update

Mark D. Mitchell, Jennie B. Lee, and Carl R. Falk

Since 2002, PCRG has carried out field and lab investigations of the Beacon Island site, an Agate Basin bison kill and camp located adjacent to Lake Sakakawea in western North Dakota. Funding for this work is from a variety of sources, including the State Historical Society of North Dakota, the U.S. Army Corps of Engineers, and the National Park Service. This year, work focused primarily on identification and coding of the large faunal assemblage from the site. In the spring, PCRG member Stacey Bennett completed a descriptive analysis of more than 3400 piece-plotted bison bones recovered during excavations carried out in September 2002 and in the summer of 2006. She was assisted in this work by PCRG members Jennie Lee and Carl Falk. The results of Stacey's work will be used to begin reconstructing the age and sex composition of the bison herd, to estimate the season in which the kill was made, and to investigate Agate Basin butchery practices. An integral component of the faunal analysis is the creation of a geographic information system to illustrate selected features of the bonebed and carry out spatial analyses of the remains. PCRG members Ken and Jo Ann Kvamme are building the GIS, using data compiled by Stacey.

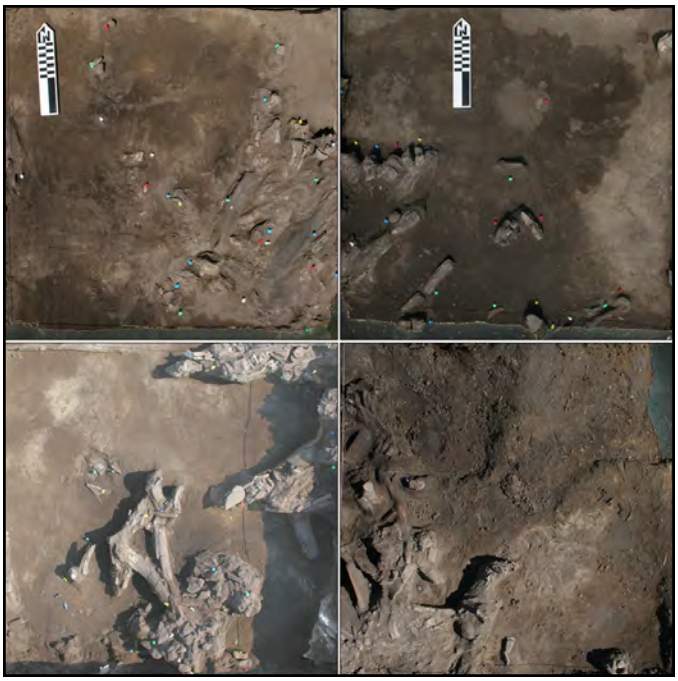
Faunal Analysis

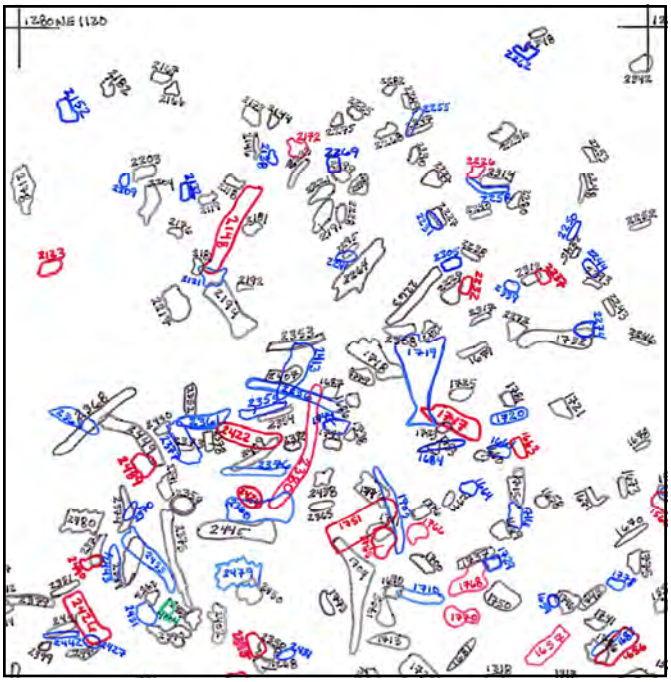
Jennie Lee's preliminary evaluation of the coded faunal data indicates that at least 29 bison are represented in the excavated portion of the bone deposit. This number is based on simple counts of right astragali; intermediate carpals (n=25) and fused central and fourth tarsals (n=24) also are common. The carpals and tarsals may be "riders," coming into the processing area as part of larger articulated limb units. Their presence could indicate that the kill was quite close to the processing area, an interpretation bolstered by the occurrence of many cranial pieces, including 125 mandible fragments.

The most common major limb element is the left distal humerus (n=16). Percent minimum animal unit (% MAU) values for the major limb elements range from 40 to 60 percent. Jennie observed a broadly similar pattern in her analysis of bison bone from the Frazier site, an Agate Basin bonebed located in northeastern Colorado. She sees this as an indication that limbs were transported as complete units, suggesting that at both sites the kill and the butchery areas were in close proximity.

With the exception of the atlas and axis, elements of the axial skeleton are rare. This may be a result of deterioration, since these bones are particularly fragile, or it could relate to the difficulty of assigning vertebral fragments to specific vertebra types. There are 119 unidentified vertebra fragments in the Beacon assemblage.

Interestingly, the minimum number of individuals (MNI) estimate for the Frazier site is also based on astragali. In her original analysis, Jennie suspected that the high frequency of these bones at Frazier might have been due to collection bias. However, the fact that the Beacon Island site exhibits a similar pattern may point instead to the use of a distinctive set of butchery practices by Agate Basin hunters.



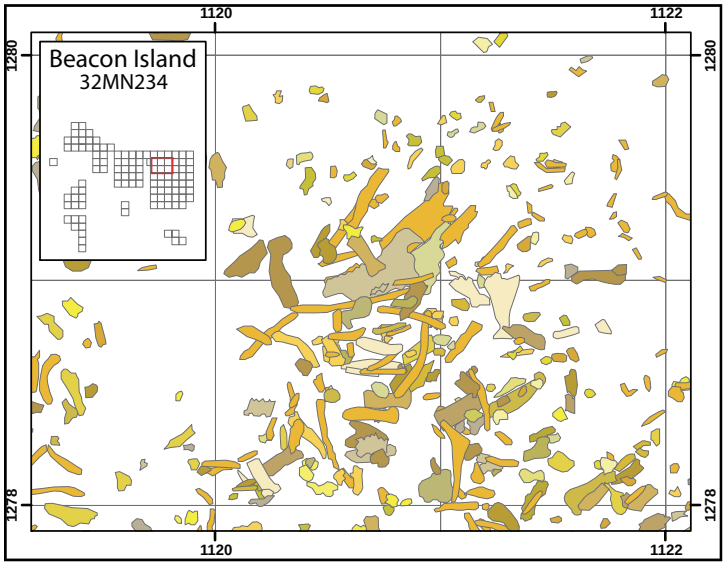


Left, a 4 square meter section of the photo mosaic discussed in the text; right, one of two overlays created for the same area.

Creation of a GIS

The first step in the production of a GIS was the creation of four separate photo mosaics. The mosaics combined 275 images taken during the 2006 field investigation with 54 line drawings from field maps produced in September 2002. Before they were combined with the drawings, each photograph was spatially rectified. For about one-third of the images the exact locations of each corner had to be estimated mathematically. Because plotted specimens photographed on sediment pedestals can appear to be spatially shifted relative to specimens on the floor of the unit, individual items were digitally "cut out" and manually shifted into proper position. Finally, contrast adjustments were made to images containing deep shadows. The resulting spatial resolution of each mosaic is approximately 2 mm/pixel.

Stacey used the final mosaics, along with the completed element identifications, to create overlays depicting the size, shape, and position of identifiable bone specimens larger than 5 cm. The resulting drawings depict more than 1700 items. Finally, Ken and Jo Ann digitized these overlays and combined them with the faunal data tables to create the GIS. Eventually, data on stone tools, flaking debris, and other artifact classes will be added to the faunal data. The GIS will be used to investigate the distribution of skeletal elements across the site, as well as their relationships to stone tools, flaking debris, and other material remains. One goal will be to identify possible carcass or limb processing areas within the bonebed.



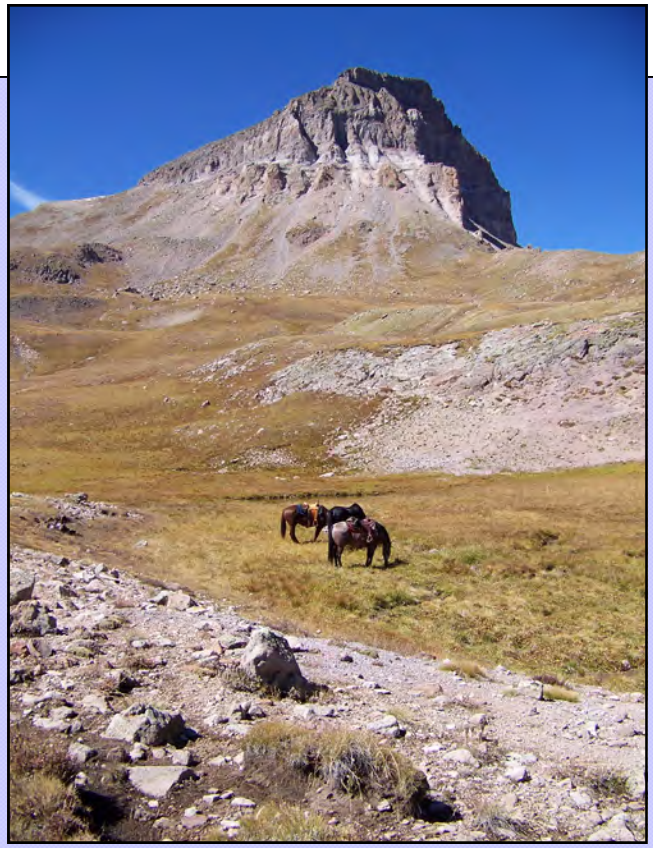
A section of the final GIS showing the area covered by the photo mosaic and overlay on the previous page.

Other Analyses

Also in 2009, PCRG member Marvin Kay conducted a high-power microwear analysis of 11 projectile points from the site. Marvin's analysis suggests that virtually every point was retrieved and reused for other purposes. Traditional technological analyses of the stone tool collection, as well as a refitting study of both tools and flaking debris, are planned for 2010.

High Altitude Archaeology in the Uncompahgre Wilderness

In 2010, PCRG will begin work on a remarkable high-altitude site in Colorado's San Juan Mountains. Located at an elevation of 3840 meters (12,600 feet), at the foot of the dramatic, flat-topped Uncompahgre Peak, the site comprises thousands of flakes and stone tools scattered over more than a hectare (2.5 ac) of alpine tundra adjacent to a permanent pond. This summer, PCRG staff and volunteers will collaborate with Forest Service archaeologists to map the site and excavate a series of test units. We will be joined by a team of geographers from the University of Denver who will sample the sediments in the nearby pond to gather paleoenvironmental data. More information about this unique project can be found in the accompanying Fieldwork Opportunity Guide and on PCRG's website at <www.paleocultural.org/participation.htm>.



Uncompahgre Peak, with the site in the foreground. The pond is just beyond the horses.

PCRG Member News

Ray Wood

Like any other major project, my history of Fort Clark and its Indian Neighbors moves along glacially: it's now been reviewed and revised, and currently is back to the editor to see if the referees approve of my changes. In the interim I've compiled a biography of James Kipp, arguably the most important of the agents of the Columbia and American Fur Companies on the Upper Missouri River. Builder of at least five of these company's trading posts (including of course Fort Clark), and probably the architect of the remaining ones, he was the host and translator for George Catlin and Prince Maximilian at Fort Clark; and a consultant for the Smithsonian Institution's evaluation of the paintings of the Mandan Okipa by George Catlin. He was also the husband of two white wives (one in Canada, the other in Missouri) and two Mandan "country wives." The second was the daughter of Mató-Tópe, or Four Bears, second chief of the Mandans. The lives of James Kipp, his Mandan wife, Earth Woman, and their son Joseph's family encapsulate the history of the entire Upper Missouri River between 1822 and the statehood of North Dakota and Montana. It has consumed most of a year in searching out and compiling this history, one of the most intriguing projects I've ever undertaken.

On October 31 (Halloween, no less!) I was honored to receive the 2009 Distinguished Service Award from the State Historical Society of Missouri here in Columbia for my historical and archaeological work over the past 45 years. It came as a real surprise despite the fact I've been engaged in historical matters since my undergraduate days. I enjoyed my 54th Plains Conference in Norman this year, and anticipate with pleasure my 55th conference this coming year in an old home, Bismarck, North Dakota. I managed to get to Bismarck only twice this year, on both occasions to give talks on Prince Maximilian and James Kipp, respectively. I hope all of you in retirement are enjoying your time as much as I do!

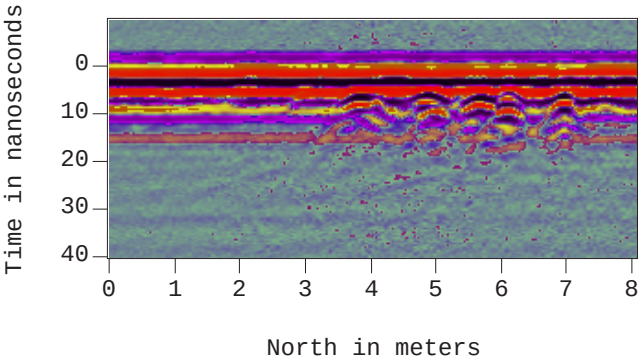
Rin Porter

I participated in a four-week dig in June and July 2009 at Old Wadena Park, in Wadena County, Minnesota, directed by Dr. Kat Hayes, Assistant Professor of Anthropology at the University of Minnesota. We were looking for evidence of fur trade activity on this site known as Little Round Hill. At this site, the Partridge River enters the Crow Wing River. Kat Hayes, her students, and volunteers from local historical societies cleared brush, dug one-meter test pits, and expanded some of the pits to two meters. The dig turned up some material that could be dated to the late 18th century, including glass trade beads, a knife piece, and pieces of a copper alloy, probably from a kettle, along with evidence of past fire pits, isolated post holes, bone fragments, and sherds. Dr. Hayes and her students plan to return in 2010.

Rin Porter running the screen at Old Wadena Park.

Bob and Kay Nickel

We conducted ground-penetrating radar and magnetic surveys of several sites in 2009, including the parade ground at Fort Atkinson State Historical Park in Nebraska. We also examined historic cemeteries with the goal of locating unmarked graves and conducted some “cold-case” surveys. Historic cemeteries are always interesting and equally problematic. Cold-case studies present their own problems, as the basis for selecting the survey location often changes during or after the survey. Bob was also involved with one of PCRG’s ongoing projects by analyzing the seeds recovered during excavations at Chief Looking's Village in 2008.



GPR reflections in the historic Simmons/Saltillo cemetery, Lancaster County, Nebraska, by Bob and Kay Nickel.

Jennie B. Lee and Craig M. Lee

Jennie is the Lab Manager and zooarcheologist for Metcalf Archeological Consultants (MAC) in Denver, Colorado (<www.metcalfarchaeology.com>). She is continuing to work with the extant collections from the Agate Basin-age Frazier site (5WL268) in northeastern Colorado. Along with colleagues Craig Lee and Jocelyn Turnbull, she is currently preparing a manuscript describing the results of AMS ^{14}C dating attempts on amino acids extracted from faunal remains recovered at the Agate Basin site. She worked closely with Stacey Bennett on the analysis of the faunal remains (almost entirely bison) recovered by PCRG at the Beacon Island site and plans to stay actively involved in the report write-up of the site. Jennie and Craig's daughter, Ella, will be three in February; *Tempus fugit!*

Close-up of ice patch in Denali National Park showing typical characteristics of a productive site including a relatively gentle slope and flat forefield. Marcus Lehmann of KPI Television and Craig M. Lee are at right (photo by Jeremy Karchut).

Craig is the Research Director and a Project Manager for MAC in their Denver office. He recently completed sections on obsidian analysis and radiocarbon dating for a synthesis volume on three parallel 100+ mile pipelines in Northwestern Colorado and Southwestern Wyoming. Craig also continues to be a Research Associate at the Institute of Arctic and Alpine Research (INSTAAR), where he and colleague John Hoffecker co-convened the 17th Arctic Conference for Archaeology in November (<instaar.colorado.edu/ArcticConference/>).

In 2009, Craig continued researching the prehistoric use of perennial snow and ice patches in Alaska, Colorado, Montana and Wyoming, with support from the USDA Forest Service and the National Park Service (previous work was reported in the 2007 PCRG Annual Report). A video clip and photos advertising a National Geographic Special "Surviving Ancient Alaska" highlighting his work in Denali and Lake Clark National Parks, Alaska with collaborator E. James Dixon is posted online at <channel.nationalgeographic.com/series/naked-science/4233/Overview#tab-Videos/07674_00>. The show will begin airing January 28, 2010. In August, Craig organized a two-day workshop along with Forest Service colleagues, Halcyon LaPoint and Michael Bergstrom, on ice patch research in Montana and Wyoming. This workshop coincided with the launch of the first web page dedicated to ice patch studies in North America (<instaar.colorado.edu/ice_archaeology>). His ice patch research in Montana will be the subject of Montana's Archaeology Week Poster for 2010.

Mark Mitchell

I managed to find time between PCRG projects and my dissertation research to visit several rock art sites in Hawai'i—and, by chance, to spend a week snorkeling with my partner Cindy on South Maui's beaches. I also published an edited volume with Laura Scheiber, a colleague from Indiana University. *Across a Great Divide: Continuity and Change in Native North American Societies, 1400-1900* is available from the University of Arizona Press.

Pecked anthropomorph and cupules, Hawaii Volcanoes National Park.

Bob Gardner

I did no fieldwork last summer but in 2007 went to Peru to help investigate a recently discovered unbroken pre-Columbian weaving tradition of Coya belts worn only by the Incan Corn priestesses. The story of the *Sara* (Quechua for corn) belts is quite fascinating. In 2008 I went to Ecuador to investigate corn ceremonies and terminology in Otavalo. I even got to help make Chi-Cha, the Inca corn beer still used in celebrations today.

Bob Gardner in Ecuador with native corn.

Peter Leach

On occasional weekends and holidays for the last four years I have been working for former Cahokia Mounds site director Margaret Brown with Glen Wright and other volunteers on her excavation of an 18th Century house in Prairie DuRocher, Illinois. In October, Robert Mazrim (with Illinois Transportation Archaeological Research Program) presented at the annual meeting of the Center for French Colonial Studies on that house and two others he excavated in the village of Cahokia, concentrating on the domestic assemblages of artifacts.

I continue to attend Friday Archaeology at Washington University here, where just about every week during the fall and spring semesters there is a presentation on recent research by a graduate student, a Washington University faculty person, or a visitor, and for $2 you can enjoy it with a cold beer. Among last year's presenters was Sonny Trimble, a former student of Ray Wood. Sonny's dissertation was on the smallpox epidemic of 1837 at Ft. Clark. Now with the Army Corps of Engineers Archeological program, he gave a presentation on his work excavating the sites of massacres of Kurds in Iraq for the trial of Sadam Hussein.

When possible, I go to presentations at the monthly meeting of Mound City Archaeology, the local branch of the Missouri Archaeological Society. One of these was by Terry Norris of the Corps of Engineers about a large petroglyph visible only at low water on the bank of the Mississippi north of Cape Girardeau, which he and Tim Pauketat see as a "Pre-Columbian Map of the Mississippi."

One of our projects was to lobby the Osage Nation at their headquarters in Pawhuska, Oklahoma to buy the last intact Mississippian mound in St. Louis. It worked! I'm including a copy of my letter to Jim Gray, the Tribal Chairman, urging them to purchase the site (reprinted below). I met a Hidatsa man at a Pow Wow in Portage des Sioux five or so years ago who assured me the Hidatsa were the original Cahokia people.

Dear Mr. Gray:

I am writing in support of your purchase of Sugar Loaf Mound in St. Louis. As you probably know it is the only surviving mound of several in the city that were related to the famous mounds at Cahokia. Some believe the Osage are the most likely direct descendents of the people who flourished there until not long before the mayhem created by the DeSoto incursion. Last year I heard a presentation by Dr. Lucretia Kelly of Washington University in support of that belief. She and her husband John Kelly and students of theirs had been excavating at a site near Mound 34, unusually rich in food remains that could only be from large feasts. Among them were a very high number of swan bones. Swans were abundant in the American bottom then and her contention is that they were eaten on ceremonial occasions. They appear frequently in the iconography of the Cahokians, and Dr. Kelly traced a similar frequency in the lore and iconography of the Osage.

Osage ownership of that mound would be a reminder to the people of St. Louis that the Osage controlled all of the country from north of the Missouri to south of the Arkansas and from the Mississippi west hundreds of miles, and European settlement here and its survival into the first years of the 19th Century was by the tacit permission and sufferance of the Osage. You did not trifle with the Osage, as more than one Spanish Lt. Governor here learned to his dismay. For many decades by far the most important trade for St. Louis merchants was with the Osage, and the monopoly the Chouteaus enjoyed was the basis of their wealth and influence so that they were the most consequential people here at the time of the Louisiana Purchase.

Those of us interested in these things would be grateful to you and the Osage Nation if you should decide to purchase and help to preserve Sugar Loaf mound and commemorate the interrelationship that was of considerable importance to the growth of a city here.

Sincerely,
Peter Leach
Member, Mound City Archaeology

Museums and Wildlife Photography

John Vicha

I missed digging this year. Not much has changed in my retired life. I still devote two days a week to the Field Museum; one in the Pawnee Earth Lodge and the other split between Egypt and the library. I started volunteering in the library this fall. Anthropology has been a major focus of the museum since its founding and the library has a lot of rare and interesting first editions. It is neat to read original work by Ray Wood and Richard Krause and say, "I know those guys." I get a really sad feeling when I come across some of Stan's work. We allow visitors from the public and visiting scholars to use the facility from 1 – 4 on weekday afternoons. So rest assured, your stuff gets read.

One of my other activities is wildlife photography and my latest triumph was getting close enough to some badland bighorn rams to get a decent shot (with a camera). Not bad for a 67-year old fat man.

John's photo of bighorns on the move in the north unit of Theodore Roosevelt National Park.

A Conclusion to Vegetation Studies

Michael Scullin and Wendy Munson-Scullin

2009 was the last year of our three year study of site ecology and stability on seven sites covering a rather jagged transect from south-central Iowa, through northwestern Iowa, east central South Dakota, southeastern North Dakota, ending in central North Dakota.

We started with the premise that the site is the primary artifact and deserving of the same curatorial expertise that would be applied to a ceramic vessel or a carved bone, and that sites can most accurately be protected and displayed in the landscape which existed either at the time the site was occupied or in as close to a botanically native environment as is possible to recreate.

The study included sites which are public parks or preserves: heavily or sparsely visited, one in a pasture on private property which had cows – and a recently built dam whose reservoir is threatening the site. Some are mowed, one is being restored to tallgrass prairie, others were what we call "mothballed." All sites still maintained native plants, but their numbers varied. Some sites were experiencing soil losses on slopes of one centimeter per year or more due to lack of plant cover. Those kept under dense cover were experiencing little to no erosion.

We measured soil erosion, plant cover and other ecological variables on multiple visits, creating a model which can be applied to other sites under similar conditions during two or more seasons to determine whether the plant cover is adequate to protect the soil from degradation – and if not, what might be done to improve the situation. Models have the advantage of being less expensive than longer-term study, quantitative, and can assist in future management design and implementation. Plant cover is possibly the most important factor in providing maximum stability to a site.

We have also been working at Double Ditch near Bismarck to test a hypothesis that two of the four former fortification ditches were obscured by a combination of soil movement by humans ("planar borrowing") and then gardening in the area adjacent to the village. Some of this study involved excavation for evidence of corn-hills (no evidence), but pollen and phytolith analysis seemed to give us the best chance of detecting gardens had they been present. Half the soil samples were processed in a commercial lab and we did the other half ourselves. Neither of us found evidence of corn. There are, however, differences in overall results owing to data quality and interpretation bias both of which we found crucial to recognize when crossing over into paleoecological reconstructions and the complexities of taphonomic processes.

Mike Scullin recording vegetation data.

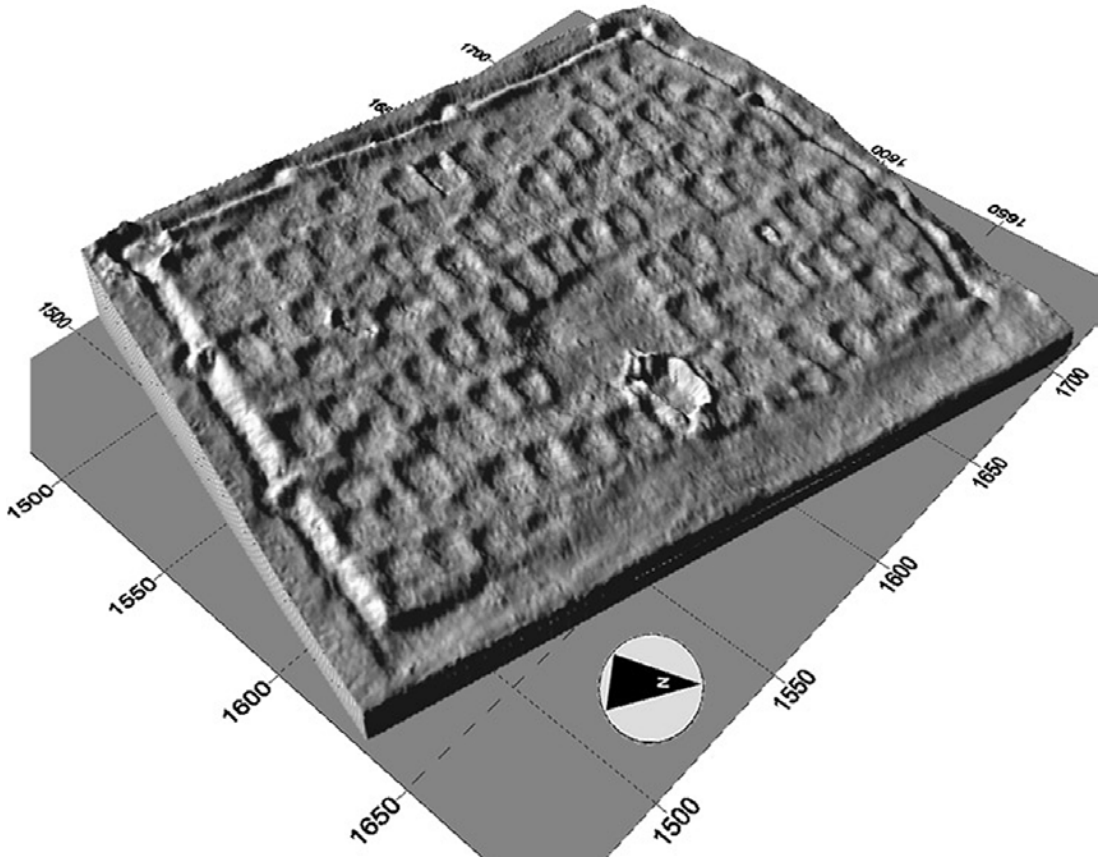
Report on Summer Activities

Kenneth L. Kvamme

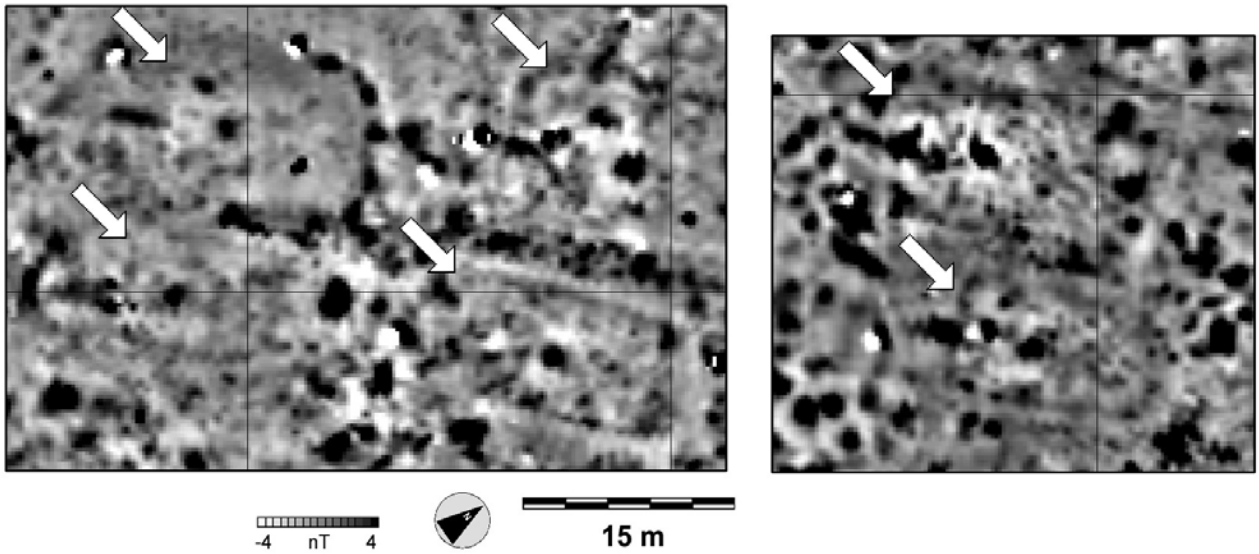
Ken Kvamme led the Archeo-Imaging Lab of the University of Arkansas, with Ph.D. students Duncan McKinnon and Adam Wiewel, on two expeditions to North Dakota in July. The first included a micro-topographic mapping of the entire surface area of the Huff Village State Historic Site (32MO11), about 24 km (15 miles) south of Mandan. A robotic total station was utilized which requires only a single operator on a wheeled reflector rod that is radio-linked with a total station. The unit automatically acquires one measurement per second, which ultimately yielded 76,788 elevation postings in transects separated at one-meter intervals over the 5.1 hectare (12.6 acres) site. The outcome was a highly detailed digital elevation model (DEM) that reveals bold surface depressions of over 100 houses and the surrounding fortification ditches and bastions (shown below). A concurrent magnetic gradiometry survey acquired 804,304 measurements. The data, illustrated on the next page, indicate interior house features in great detail, including centrally-placed and auxiliary hearths, interior storage pits, entryways, and in many cases clear house outlines. Prehistoric houses are indicated in three distinctly different ways, which could point to subtle variations in house form or construction methods. Significantly, the magnetic results, in combination with the topographic data, strongly suggest the presence of 13 previously undefined houses, at least one instance of overlapping houses (suggesting time-depth), and good evidence of the presence of circular houses, a form typical of later occupations. Ubiquitous storage pits are shown to exhibit several patterns including linear distributions adjacent to fortification ditches, small clusters in open areas, within houses, beneath house entryways, and surrounding the outer perimeters of houses. This study provides a new spatially accurate site map of the site that indicates 110 likely houses. An additional six houses removed during 1960s bank stabilization suggests a total of 116 houses were once present at Huff, a substantial increase compared to the 103 previously defined.

The second project was carried out in the Lynch Knife River Flint Quarry (32DU526), the type-site for the Lynch Knife River Flint Quarry National Historic District, near Dunn Center. The focus of that project was topographic mapping by robotic total station and creation of a DEM to illustrate the many quarry pits that dot the landscape. Over 20,000 elevation postings were acquired in a 1.08 hectare (2.7 acre) region (shown on next page). Although not part of the planned project, a small magnetic gradiometry survey of .18 hectares was insightful because it revealed a lack of magnetism within quarry pits owing to matrix removal, enhanced magnetism in areas of matrix mounding, former pits that have been filled-in, historic or recent iron artifacts, and small anomalies that could represent igneous rocks that may have been used as anvil stones, prehistoric hearths, or even cache pits.

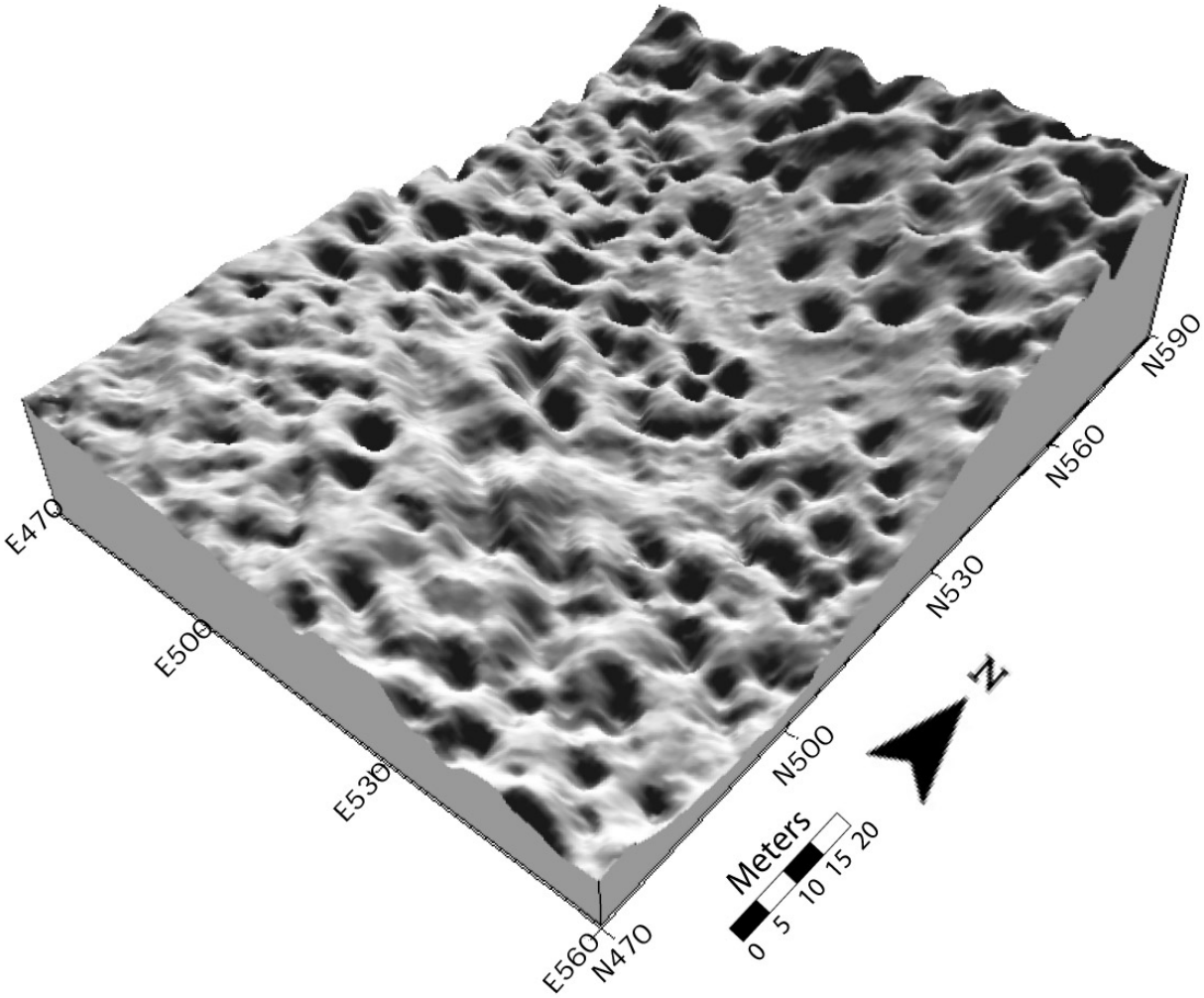
Much of the work completed during 2009 was made possible with assistance and funding provided by the State Historical Society of North Dakota.



The Huff DEM looking west; coordinates are in meters.



Segments of the magnetic gradiometry data showing the great detail in which Huff's well-known rectangular houses (arrows), with central hearths and long linear entryways, are made visible.



The Lynch Quarry DEM illustrating numerous quarry pits.

Activities, 2009

Dale Henning

As a retired person, perhaps I can be excused for not being *too* active, especially for having given up field work other than for an occasional site visit. But each morning I feel compelled to deal with a number of aging unreported projects so I head for the computer and home lab. Despite a proclivity for satisfying my curiosity, which leads me away from specified long-term endeavors, some real progress has been made over the past year.

Jim Collins and I have finally stamped *fini* on our long-standing obligation to complete a final report on three villages and cemetery areas located at the confluence of the Big and Meramec Rivers in eastern Missouri. The report will be published in the next issue of *The Missouri Archaeologist*.

Eric Hollinger and I continue to collect data for our Portable Art project which is focused on red pipestone tablets, most of which date from a few centuries prior to the contact period. This is a project without end, as the number of specimens grows ever larger. But, we have made progress.

Curiosity has led me astray in several ways this past year. For example, the Portable Art project stimulated research on the Bastian Oneota village site (by far the greatest number of tablets have been recorded from here). I analyzed a large surface collection of stone tools curated by the Sanford Museum in Cherokee in hopes of determining the degree of relationship to the Blood Run site (seems close, but not proven to full satisfaction), and seeking tools that might have been used to process and incise the tablets (some fine sandstone saws possibly used, and a few gravers analyzed by Marvin Kay). In the course of this analysis, I have gained greater respect for Oneota chipped stone tool manufacture, use and maintenance and now enjoy an even stronger belief that women did their fair share of work in this medium.

Ceramics from Correctionville discussed in text; top to bottom are Figures 1 through 3.

While preparing a manuscript on early Oneota evolution and interrelationships west of the Mississippi, I began to worry over my analysis of Correctionville pottery done a half-century ago for the MA thesis (published 1961), so I borrowed the pottery from the Sanford Museum and re-analyzed it. My conclusions are that we now know a lot more about that part of the world than we did a half-century ago, and that the pottery suggests the Oneota people who lived on the Correctionville villages interacted with eastern Plains indigenes frequently and quite positively. Now, if I just knew where some of those vessels came from. For a few I haven't a clue. I am therefore including three photos of sherds (after all, who wants to see a shot of old Dale posing in front of Peche Merl or Lascaux? [see below]), in hope that someone out there can help place these pieces.

All three photos are sherds from Correctionville, dating ca. A.D. 1300. The pieces illustrated were excavated from pit features, are shell tempered and must be regarded as aberrant in the collection I am working with (over 200 rimsherds). Figure 1, a rimsherd with handle, is characterized by the nodes at the shoulder margin. A very similar noded vessel is reported from Minnesota by J.B. Griffin (*American Antiquity* 1945). Five bodysherds from Correctionville offer similar decoration at the shoulder margin, something I have not seen from any other Oneota site. Figure 2, a small piece of the upper por-

tion of an S-rim, is decorated with an Opposed Diagonal or Alternating Triangle motif. Figure 3 is a small vessel with outcurving rim with parallel interior-exterior sides. The two pieces illustrated in Figures 2 and 3 have battered and worn lips and are polished suggesting long use, perhaps heirloom status. If you can place them, let me know; this is a call for help.

In addition to working on research projects, I have done two book reviews, an obituary and reviewed some journal articles. It is gratifying to be asked to participate in these ways.

But all is not drudgery in the lab. Barbara and I flew to Phoenix in the early spring, rented a car and drove to Rancho Mirage for a visit with my sister and her husband, then on to San Diego where we visited with my son and one of my students and her husband. A jolly time and ... it was warm!

Then, this fall we went to the Dordogne region of France for two weeks to see among other things the Upper Paleolithic cave paintings. Fantastic! Would that I had seen them 30-40 years previous ... some classes might have been enhanced.

Right now, a pile of Great Oasis pottery awaits my attention. And there are more of the same ... my attentions will be directed that way next year and beyond given a bit of luck with health and enthusiasm.

The Northern Plains of North America and Ulaanbaatar, Mongolia

Aaron Barth

Whether looking at the archaeological or historical record, or contemporary society, the inherent need to acquire (or make) energy influences all realms of humanity. The impossibility in working beyond nature's economy, and collaborating with the landscape then and now, was transparent throughout the spring, summer and autumn of 2009. During this time, I worked pedestrian cultural resource inventories on the northern Plains, the majority of which were for proposed wind farms. To speak of at least one universal about then and now, at least on the northern Plains, it is abundantly clear and understandable that hilltops then provided prehistory with a place to look out for game, and construct stone circles and stone cairns. For engineers today, those same hilltops understandably remain prime areas to propose wind turbine locations.

Beyond the fieldwork, Bismarck State College allowed me to develop a short evening seminar course entitled, "History and Memory on the Northern Plains," held on two evenings during the autumn 2009 semester. A particular highlight of the course involved extending an invitation to Dakota Goodhouse (ethnic Lakota, and enrolled member of Standing Rock) to see if he would bring in and share his contemporary (and historically researched) winter count with the class. Goodhouse did, and we revisited one of those Clifford Geertz-ian themes: that is, the need to place singulars -- in this case individual winter count pictographs -- into the context in which they were created. In the case of the winter count, Goodhouse explained the meaning behind individual pictographs, but also how these individual pictographs bear on others in the broader count.

Plans for the beginning of 2010 have me visiting Beijing, China for approximately 5 days, and then via the Trans Siberian Rail (an approximate 25-29 hour rail ride), traveling northwest to Ulaanbaatar, Mongolia for a 2-week visit. The ecological realities of being south of Siberia in January do not encourage one to entertain leaving Ulaanbaatar for much. Thus, I will be thinking about the deer stones near the ancient freshwater Lake Hovsgol in northern Mongolia, but will not be visiting them on this trip. The Smithsonian's Arctic Studies Center has on line reports regarding the latest scholarly work carried out in that area (see <www.mnh.si.edu/arctic/html/pub_field.html>).

Finally, the Bismarck Tribune (<www.bismarcktribune.com>) invited me to begin a blog, with the thematic intent to bring what historians, archaeologists, and humanities-inclined folks do to a broader public. The blog spot is entitled "The Edge of the Village," and as of December 2009 it can be accessed on the mid-right column of the Bismarck Tribune's homepage.

Aaron (at left) in front of a traditional Mongolian ger.

Work in the Northern and Central Plains

Scott Slessman and Scott Phillips

It is good to have PCRG in the neighborhood. Scott Slessman, Scott Phillips, and Erin Salisbury, working with SWCA Environmental Consultants in Broomfield, have continued to focus on archaeological research across the nation, with our Great Plains work focused on the Rocky Mountain front, from Montana to Texas, but with continued expansion of our Bismarck, North Dakota operations.

In South Dakota during 2009, working with SWCA's Paul Burnett on a broader project led by Erin Salisbury, we began to model archaeological deposition potential in areas likely to have alluvial sediment aggradations at drainage confluences along a several hundred mile long corridor across the northeast portion of that state and extending into Montana. This modeling will next be followed by geomorphic testing in the field.

Scott Slessman at the Frazier site in 2009.

In Wyoming, we are finalizing our excavation permits to continue work on Plains/interior basin transition sites, building on previous years' research of the Joe Miller elk processing site. This Wyoming work has also included depositional and site modeling of an east/west swath across the south central part of the state, suggesting some investigation potential for refining regional chronologies and confirming some long intuited posits regarding 'tipi ring' distributions becoming less dense as one exits the Plains to the west. Our group has composed three other GIS-based models of archaeological sites in Wyoming's mountains and basins over the last year as well to better inform federal land management agencies' planning.

In Colorado, we have continued to refine some basic modeling strategies for archaeological sites on forested Front Range State Park lands. We also conducted minor testing confirming the location and substance of a Late Prehistoric site now on Larimer County Open Space. The site was originally discovered in the 1960s by private collectors searching for beads, ceramics, and lithic tools within a farm complex. We also volunteered to help with re-examination of the Frazier site for accomplishing conservation of this Agate Basin-type site originally excavated by Marie Wormington (see *American Archaeology* Fall 2009:48 or <www.americanarchaeology.com/aaaquis.html>). Our folk were called upon to stand by at the Weld County Commissioners hearing on the Frazier site, to provide expert opinion if needed.

We have continued our public outreach and education exercises, presenting archaeology at schools throughout the Denver metropolitan area, focusing on elementary through high school classes where teachers are presenting archaeology modules, such as under the "Project Archaeology" program (see <projectarchaeology.org>).

On the Plains of Kansas and Texas, we have simply been doing cultural resource survey for a variety of projects, but have recently had a pair of our colleagues (Dr. Judy Cooper and Dr. Ryan Byerly) doing graduate work at the Bonfire Shelter in Texas. These two subsequently completed their dissertations, respectively on bison kill and processing sites across the entire Great Plains (U.S. and Canada) and on bison health across the millennia.

In North Dakota, South Dakota, and Nebraska we are in the process of completing tens of thousands of acres of cultural resources survey on the Missouri River mainstem reservoirs to better inform federal management of archaeological sites in those areas. We have also been working with a number of Native American Tribes in the process, most frequently on the Fort Berthold Reservation in North Dakota.

The SWCA crew excavating at the Joe Miller site on the southern Wyoming Plains.

Fieldwork and an Egyptian Vacation

David Purcell and Kim Spurr

On the archaeology front, David finally completed the field phase of the big powerline survey that has occupied him for the last two years. His crew finished in the field on the Hopi Reservation in mid-October, a rare opportunity, as the Hopi Tribe seldom permits outsiders to work there. One of the very last sites they recorded was a huge rock art panel with spectacular prehistoric and historic imagery. After walking across Arizona in all directions and recording hundreds of sites, he has a comprehensive knowledge of the various ceramic traditions through the prehistoric and historic periods. Kim spent much of the first half of the year on excavations in various parts of northern Arizona, including a month of excavation in the Grand Canyon with the NPS. This was followed by a week working for PCRG on site assessments in southwestern Colorado (see the report on page 3).

David's other big success was coordinating the publication of a 1967 manuscript from the archives of the Museum of Northern Arizona, entitled *Archaeological Investigations in Northwestern Arizona*. This project, which has been in the works since 1996, will be the topic of a paper at the Society for American Archaeology meetings in St. Louis in April.

On a personal note, we celebrated our 15th wedding anniversary by taking a 2-week trip to Egypt, where we saw the Pyramids and Sphinx at Giza, Abu Simbel and other temples of Nubia, Luxor and Karnak, the Valley of the Kings, the Step Pyramid at Saqqara, and the old Islamic section of Cairo. A highlight was cruising along the Nile, which gave a perfect vantage point to observe all of the villages, farms, fields, fishermen, and other sites that typify modern Egypt.

Above, David enjoys the Nile cruise; below, Kim aboard a camel named Humphrey.

Continued Work in Scotland

John Craig

For the third consecutive year our small but experienced group of seven continued testing and excavations on the Arbigland Estate in southern Scotland, the location of John Paul Jones' boyhood cottage. The work is under the direction of Dr. Julie Schablitsky, from the University of Oregon Museum of Natural and Cultural History. Two previous years yielded many artifacts from the mid-18th century but much was out of context and we discovered that the ground had been disturbed by extensive installation of clay drainage tile during the late-18th through early-20th centuries. Hundreds of artifacts were retrieved, however, which have helped us understand the way of life in the Paul household in the mid –1700s. Ale bottles, earthenware, pottery sherds, and animal bones were most prevalent. Our efforts have now shifted to other areas of Arbigland Estate which dates to the mid-1400s. We've discovered the remains of a small village on the estate and an Iron Age hillfort, both of which predate the estate itself. We will return once again this summer thanks to the generosity of First Landing Foundation and continue our research, testing, and excavations in these new areas and others in hopes of discovering artifacts that will lead us to understand the ways of life of the aristocracy and peasantry. We will also be keen to learn how these different settlements that are so close together geographically may have overlapped in time, and with whom else they may have coexisted. Were the Romans there also? Hadrian's Wall is just 10 miles or so across the Solway Firth from our site.

John Craig working the screen at Arbigland Estate.

Three Out of Four Corners

Stacey Bennett

Once again, 2009 was full of changes. Wintering in Colorado had its challenges but nothing like the previous year spent in Bismarck, ND. Finishing the lab work for Chief Looking's Village and Beacon Island was of the utmost importance before relocating to Portales, New Mexico, to begin the graduate program at Eastern New Mexico University. The students from University of Colorado, Boulder were a great crew to work with and really got PCRG off to a great start in Broomfield.

Fieldwork throughout the summer could not have been in more picturesque settings. Mapping the remains of stone dwellings at Upper Crossing in Saguache, Colorado, was exposure to something new and provided the physical warm-up needed for the miles and miles of hiking through the San Juan Forest with Kim Spurr in June. The PCRG field projects of 2009 were a welcome change from the ordinary and I truly learned a lot.

Working with Mark Mitchell at the Upper Crossing site.

Moving to Portales occurred before, during, and after the field season with PCRG. Officially, I had relocated but settling in and preparing for school was a different story entirely. Between painting walls and refurbishing the floor of my new house, I was able to assist in faunal identifications for the field school at Blackwater Draw. This was a great introduction to the intensity of New Mexico summers, my fellow students, future professors, and my lament for the delicious PCRG field meals earlier in the summer!

With the first semester of graduate school under my belt, I am gearing up for a semester packed with studying statistical applications and archaeological theory. I plan to continue working with George Crawford at Blackwater Draw throughout the semester and well into the future. There are a number of projects taking place and it's been great to incorporate my academic adventures with weekly hands-on fieldwork at the Clovis site.

Great thanks to everyone at PCRG for their continued support and guidance, I could not have done it without you. As always, thanks and thoughts to Stan.

Stacey and students at the Blackwater Draw fieldschool.

Mapping the bonebed at Blackwater Draw.

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Meet Maxine McBrinn, a New PCRG Research Associate

I began my association with PCRG in 2009 and am looking forward to meeting many of the members on field projects in 2010. My Ph.D. is from the University of Colorado, Boulder, and I completed a three-year post-doctoral stint at The Field Museum in Chicago. The latter was focused on creating a new, permanent exhibit called *The Ancient Americas*, which presents North, Central, and South American archaeology. You can see the web pages for the exhibit at <www.fieldmuseum.org/AncientAmericas/exhibition 1.asp>. My research is described at <www.fieldmuseum.org/AncientAmericas/research scientist 6.asp>, a page that also provides a link to my video discussing the transition between the Paleoindian and Archaic periods.

My research focuses on the earlier prehistory of the western U.S., especially in the Southwest, but also in the Great Basin and Great Plains. I am particularly interested in the Archaic period, and use lithics and perishable artifacts to investigate social identity and economic networking. I have several papers that will be published in 2010, including a survey of recent research on the western Archaic for the *Journal of Archaeological Research* and a short paper looking at gender in the Paleoindian and Archaic periods for the *Archaeological Record*. I am currently using a Human Behavioral Ecology framework to examine why foragers in the northern Rio Grande area of New Mexico were so late to commit to farming. This paper will be presented at the 2010 SAAs in St. Louis, where Barb Roth and I organized a symposium on Foragers and Early Farmers in the Great Basin and Southwest. I am also co-authoring, with Linda Cordell, the third edition of her classic text, *Archaeology of the Southwest*. I teach at Metro State College Denver as an Affiliate Faculty member.

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New PCRG Membership Categories

Beginning in 2010, PCRG will offer several new membership categories. In addition to the standard Participating Membership for individuals, a discounted Student Participating Membership is also available as is a Household Participating Membership for households with more than one active member. Annual dues for the standard Participating Membership remain unchanged at $25.00. Dues for Students Participating Membership will be $10.00, while those for Household Participating Membership will be $30.00. A new Supporting Membership category is also available. Annual dues for an Individual Supporting Membership will remain $10.00, while dues for a Household Supporting Membership will be $15.00. Some existing members may notice a small increase or decrease in their dues this year as a result of these changes.