

**NINTH BIENNIAL
ROCKY MOUNTAIN ANTHROPOLOGICAL CONFERENCE**

PROGRAM AND ABSTRACTS

**OCTOBER 8-11, 2009
Aspinall - Wilson Center
Western State College of Colorado
Gunnison, Colorado**



ORGANIZERS

Casey Dukeman
Western State College

David Byers
Missouri State University

Brian Andrews
Rogers State University

Rachel Wolf
Missouri State University

Megan Jamison
Western State College

LuAnna Bryant
Western State College

Ruth Dukeman

STUDENT ORGANIZERS AND VOLUNTEERS

Barbara Mason
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Greg Meldrum
Jeff Hunt
Jenna Ely
Josh Boyd
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BOARD MEMBERS: ROCKY MOUNTAIN ANTHROPOLOGICAL ASSOCIATION

Kenneth Cannon
Utah State University

David Madsen
Texas Archaeological Research Laboratory

Linda Scott Cummings
PaleoResearch Institute

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Utah State University

Marcel Kornfeld
University of Wyoming

Russ Tanner
Kyak Marook Heritage Research, LLC

Craig Lee
Metcalf Archaeological Consultants

Jeannie Tiemann
Ruby Moon, Inc.

Welcome to the 9th Biennial Rocky Mountain Anthropological Conference,

"At the 1993 ground-breaking meeting, in Jackson Hole, the organizers vision was to design a conference to bring together anthropologists and researchers in allied fields whose work focuses on the Rocky Mountains of North America. A major emphasis for this was the tremendous amount of work that was occurring in the Rocky Mountains and the recognition that there was a significant Holocene occupation in these high elevation areas that needed to be explored within the regional setting of the Rocky Mountains.

The goal of the 1993 conference organizers was to create an informal setting for researchers to gather biennially and where participants could discuss common problems and issues, compare data, and share information and insights about this vast, varied, and fascinating region. While the basic philosophy of the conference has not changed, there has been growing interest in formalizing the conference into a non-profit organization. Part of the decision was based upon fiscal and legal considerations, but largely it was driven by a desire to allow greater flexibility in how the conference can support students and disseminate the results of our research to the larger professional community and the general public."

Enjoy your visit here at Western State College.

<http://www.rockymtnanthro.org/index.htm>



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Gunnison Country Chamber of Commerce - www.gunnisonchamber.com, Gunnison, CO (970) 641-1501

The official source of visitor and Chamber of Commerce information for the Gunnison, Colorado region. Our genuine hospitality and western professionalism shine through in the quality of information and service we provide for the communities of the Gunnison Valley and those who visit the area.

Dr. Janneli Miller - Dolores, CO

Janneli F. Miller is a licensed midwife and PhD Medical Anthropologist. She has been a practicing homebirth midwife since 1978 in Oregon, Arizona, Mexico and Colorado, and has also served as Professor of Anthropology and Women's Health in the Dept. of Medicine and Society at Washington University in St. Louis; Idaho State University, Western State College of Colorado, and Northern Arizona University. Her research is centered on birthing practices, in particular solitary, or 'unassisted' birth, with attention to the sociocultural and political economic factors dictating what kind of choices women make during their childbearing year. She works on the interface between local practice and national and international public health policy in rural and developing contexts. She uses qualitative anthropological methods in combination with clinical strategies to shed light upon differential power dynamics at work in pluralistic health contexts.

Miller takes an applied approach in her research and believes the anthropological perspective is fundamental to successful public and primary health care services and education. She is currently at work on a book on Unassisted Birth among the Rarámuri of Northern Mexico, as well as continuing her work with the Rarámuri and investigating unassisted birth in the US.

Paleo Research Institute - www.paleoresearch.com, Golden, CO USA(303) 277-9848

Paleo Research Institute has a 35+ year history of working with archaeobotanic remains. We have the opportunity to work with many archaeologists and scientists around the world on projects. Through this diverse work, we are enriched through exposure to new and exciting research designs and concepts. At Paleo Research Institute we pursue cutting-edge research into topics of regional and global importance. We enjoy working with new concepts and developing new techniques.

The George C. Frison Institute of Archaeology and Anthropology -

<http://uwacadweb.uwyo.edu/FRISONINSTITUTE/> Laramie, WY (307) 766-6920

The George C. Frison Institute is a UW research and outreach facility dedicated to the study of North American, High Plains, and Rocky Mountain archaeology and culture. The Institute fosters interdisciplinary and international scholarship, with an emphasis on early peoples and peopling of the Americas. The Institute maintains labs, administrates programs, and engages in public outreach. The Institute is dedicated to public education through volunteer participation in its field and lab programs, field school, consultations, public speaking, and cooperation with the Wyoming Archaeological Society.

Alpine Archaeological Consultants, Inc. - www.alpinearchaeology.com Montrose, CO (970) 249-6761

Founded in 1987, Alpine Archaeological Consultants, Inc. is a small business based in Montrose, Colorado that engages solely in contracted cultural resource studies throughout the Rocky Mountain West, Plains, Great Basin, and Southwestern states for private clients and federal or state agencies. The firm employs over 20 full-time archaeologists, an Office Manager, and a small clerical staff. The professional staff includes specialists in artifact analyses, GIS, faunal analysis, ethnobotany, historical archaeology, and prehistoric archaeology.



EVENT LOCATION:

Aspinall-Wilson Center, Western State College Campus 909 Escalante, Dr. (970) 943-3232
 Holiday Inn Express, 910 E. Tomichi, (970) 641-1288
 Hurst Hall, CT Hurst Museum, Western State College Campus, (970) 943-2015
 Tomichi Tavern, 136 W. Tomichi Ave (970) 641-1491

SCHEDULEThursday Evening Oct 8

5-9PM:	Registration	Holiday Inn Express
6-9PM:	Early Bird Party	Holiday Inn Express

Friday Morning Oct. 9

7:30AM-Noon:	Registration	Aspinall-Wilson - Lobby
8AM - 5PM:	Publisher Displays	Aspinall-Wilson - Lobby
8AM- Noon:	Current Research in NW Colorado	Aspinall-Wilson - South room
8AM-11:30AM:	General Paper Session	Aspinall-Wilson - North room
12:15PM - 1:30PM:	Plenary Lunch	Aspinall-Wilson - Lobby

Friday Afternoon Oct. 9

1:30PM - 5PM:	Registration	Aspinall-Wilson - Lobby
1:30PM - 4:30PM:	Current Research in NW Colorado	Aspinall-Wilson - South room
1:30PM - 3PM:	Modern SEM and archaeology	Aspinall-Wilson - North room
3:30PM - 5PM:	General Paper Session	Aspinall-Wilson - North room
1:30PM - 4:30PM:	Poster Symposium: Anth. Research	Aspinall-Wilson - East tent
5PM - 6PM:	Business Meeting	Aspinall-Wilson - South room

Friday Evening Oct. 9

9PM - ?	Live Music Benefit	Tomichi Tavern
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Saturday Morning Oct. 10

8AM - 11:00AM:	Mountaineer Tours	Aspinall-Wilson - North parking
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Saturday Afternoon Oct. 10

1:30PM - 5PM:	Folsom in the Upper Gunnison	Aspinall-Wilson - South room
1:30PM - 5PM:	General Paper Session	Aspinall Wilson - North room
1:30PM - 4:30PM:	General Poster Session	Aspinall-Wilson - East tent

Saturday Evening Oct. 10

6PM - 7PM:	Banquet - Holiday Feast	Aspinall-Wilson - South room
7PM - 8PM:	Keynote Address	TBD
9PM -?	Live Music after party	Tomichi Tavern

Sunday Morning Oct. 11

9AM	Meet for Field trips	Aspinall-Wilson - North parking
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THE PROGRAMThursday, October 8, 2009Time:5PM Early-bird registration - *Holiday Inn Express*6PM Early-bird Party - *Holiday Inn Express*Friday, October 9, 2009Time7AM Registration *Aspinall-Wilson Center*Time **SOUTH ROOM: Morning (Session 1)****Symposium: Current Research in Northwestern Colorado**

- 8:00 *Packrats, Pollen and Pine I: Holocene Vegetation History in Northwest Colorado* by David Rhode, Lisbeth A. Louderback, David V. Madsen, and Michael D. Metcalf
- 8:20 *Packrats, Pollen and Pine II: The Flat Tops Pollen Records and Implications for Regional Millennial-Scale Climate Cycles* by David B. Madsen, David Rhode, Lisbeth A. Louderback, and Michael D. Metcalf
- 8:40 *Lessons from the Dirt Revisited I: A Sequence of Nine Holocene Sediment Events Recognized Along the WIC-REX Pipeline Right-of-Way, Northwestern Colorado-Southwestern Wyoming* by Michael McFaul, and Michael D. Metcalf
- 9:00 *Lessons from the Dirt Revisited II: Cultural Stratigraphy Along the Piceance-REX Pipeline Right-of-Way, Northwestern Colorado-Southwestern Wyoming* by Michael D. Metcalf, and Michael L. McFaul
- 9:20 *Holocene climate of the Upper Colorado River: Decade-to-Century Scale Variability from Small, Calcareous Alpine Lakes* by Lesleigh Anderson
- 9:40 *Cross Mountain Project* by Carol Patterson
- 10:00 **Break**
- 10:20 *Archaeological Investigations of Duffy Shelter (5MF435): A Stratified Rockshelter in Northwestern Colorado with Possible Evidence of a Fremont Forager Occupation* by Sam Germaine-Richings
- 10:40 *Red Army Rockshelter (5RT345): Stratified Occupation from the Archaic Pioneer Period through the Protohistoric Era in Northwestern Colorado* by Kelly J. Pool
- 11:00 *5MF1915: Snapshots of Life along Bob Hughes Creek in Northwestern Colorado, from the Paleoindian to Protohistoric Eras* by Sarah Jennings
- 11:20 *5MF6255: An Early Basin House Occupation in the Yampa Valley* by Stephanie Slaughter
- 11:40 *The Long Knife (5MF5827): A Shoshone Occupation on the Fringe* by Jenn Mueller

Time**General Session****NORTH ROOM: Morning (Session 2)**

- 8:00 *Prehistoric Alpine Villages in the Wind River Mountains, Wyoming* by Richard Adams, Bryon Schroeder and Orrin Koenig
- 8:20 *From Denali to Yellowstone, Results of Ongoing Ice Patch Investigations in Western North America* by Craig M. Lee
- 8:40 *Tubes and Spirals: An Analysis of Bird Bone Beads from the Weinmeister Site* by Jessica Anderson, Erin Parsons and Vlisha Stanerson
- 9:00 *Recent Work at the Coffin Bison Kill in Northern Colorado* by Ryan M. Byerly
- 9:20 *Simulating Prey Choices as a Function of Empirically-Derived Demography* Patrick Orion Mullen
- 9:40 *The Bridger Antelope Trap: Preliminary Results of Dendrochronology Study* by Lynn Harrell, James H. Speer and Karla Hansen-Speer
- 10:00 **Break**
- 10:20 *Experimental Replication of Mammoth Limb Bone Reduction Patterns Using Elephant Bone: Evidence for Last Glacial Maximum Humans in North America* by Steven R. Holen and Kathleen Holen
- 10:40 *Update on Organic Residues: FTIR Lives On!* By Linda Scott Cummings and Melissa Logan



- 11:00 *The Role of Maize in Low-Level Food Production Economies of Northeastern Utah* by Robert Nash
- 11:20 *Human Remains From Deadman Cave, Utah: AMS Dates and a Re-Analysis* by Derinna V. Kopp and Ronald J. Rood
- 11:40 No Paper Scheduled

Lunch 12 - 1:30 LOBBY AND SOUTH ROOM: 12 - 1:30 PM

- PM**
- 12PM **Plenary Lunch:** *Cultural Interaction and Continuity Between the Rocky Mountains and Adjacent Regions*

Time SOUTH ROOM: Afternoon (Session 3)

Symposium: Current Research in Northwestern Colorado

- 1:30 *Intermountain Pottery from the Long Knife Site, Moffat County, Colorado* by Summer Moore McMillian
- 1:50 *Lithic Procurement Areas in Northwestern Colorado* by Robyn Watkins Morris
- 2:10 *Temporal and Spatial Trends in the Use of Obsidian in Northwest Colorado and Vicinity* by Craig M. Lee
- 2:30 *An Appraisal of Ten Millennia of Lithic Reduction Practices in Northwestern Colorado and South-Central Wyoming* by Rand A. Greubel
- 2:50 *Out of the Weather, but Not Out of Food: Archaic Era Shelter and Storage along the Piceance Pipeline Route* by Kelly J. Pool
- 3:10 **Break**
- 3:30 *Paleoethnobotanical Evidence of Food Exploitation in Northwestern Colorado and Southwest Wyoming: Modeling Subsistence through Time* by Abbie Bollans
- 3:50 *Preliminary Results of the Faunal Analysis of the WIC and REX Pipeline Projects in Northwest Colorado* by Jennifer Borresen Lee
- 4:10 *Modeling Annual rounds in Northwestern Colorado* by Alan Reed
- 4:30 No Paper Scheduled
- 4:50 No Paper Scheduled

Time NORTH ROOM: Afternoon (Session 4)

Symposium: Modern Scanning Electron Microscopy (SEM) and Archaeological Analysis: A Compilation of Experiments in SEM imaging and X-Ray Fluorescence (XRF)

- 1:30 *Revisiting the SEM: A Series of Experimental tests on the Utility of Modern Scanning Electron Microscopy in Archaeological Analysis* by Casey Dukeman
- 1:50 *The Application of Panperythorio Images Generated by a Scanning Electron Microscope* by Edward R. Morrison
- 2:10 *The Utility of Scanning Electron Microscopy in Locating and Determining Patterns of Use-Wear on Quartzite Tools* by Joshua Boyd
- 2:30 *The Funky Report* by Greg Meldrum
- 2:50 *Experimenting with Accelerating Voltage Vs. Sputter coating on Burned Biological Specimens* by George Dombrowski
- 3:10 **Break**

General Session NORTH ROOM

- 3:30 *Slicing the Dirt: Anatomy of a Bighorn Rockshelter* Marcel Kornfeld, Price Heiner, Kayla Bradshaw, Allison Hadinga, Kyle Joyner, Alicia Sorenson, Dwight Hicks, and Mary Lou Larson
- 3:50 *Paleoenvironmental Reconstruction of SE Idaho: A Timeline for Paleoindian Archaeology* by T. Christopher Brown



- 4:10 *The Old Wood Calibration Project and the Vanishing Ute Prehistory of Western Colorado* by Steven G. Baker, Jeffrey S. Dean and Ronald H. Towner
- 4:30 *Weeksville Pictographs, Western Montana: Prehistoric and Historic Importance of Location* by Mavis Greer and John Greer
- 4:50 No Paper Scheduled

Friday, October 9 Poster Session: 1:30 - 4:30 pm

Poster Symposium: Anthropological Research in the Gunnison Region - EAST TENT

- 1 *Creationism and Evolution at Western State College* by Megan Jamison
- 2 *Institutional-Style Homes vs. Homes that have Undergone Cultural Change: Residential Responses* by Michelle Markuson
- 3 *Cross-Cultural Analysis of Ice Fishing* by Greg Meldrum
- 4 *Seeing and Speaking about Color* by Edward R. Morrison
- 5 *Green Ranching' in the Gunnison Watershed* by Curran Robinette

General Poster Session - EAST TENT

- 6 *The Corner Saloon: Middle Class Comforts in a Working Man's Bar* by Larry Beidle, Mary Van Buren, Steven Baker, Bonnie Gibson, Michelle Hansen, Rachel Kline, Annie Maggard, Cashel McGloin, and Josh Weinberg
- 7 *Heaven Knows Me Best: Narration of Queer Identity in the Afro-Cuban Religion of Santería/Lukumí* by Robert Carney
- 8 *Women Sodalites and Their Role on the High Plains* by Jenna Ely
- 9 *The Crooked Creek Cite (48JO108)* by Ardeth Hahn
- 10 *Black Shale Arroyo: Early Ceramic Occupation Along the Northern Colorado Hogbacks* by Carissa Ramirez, Megan Finch, Jason M. LaBelle, and Courtney Carlson
- 11 *5LR110: A Multi-Component, High-Intensity Occupation Site in Northern Larimer County, Colorado* by Michael Troyer and Christopher Reed
- 12 *Paleoecology of Early Holocene Bison in the Greater Yellowstone Ecosystem: An Example from the Horner Site, Park County, Wyoming* by Kenneth P. Cannon
- 13 *Bison Seasonality and Herd Structure at the Espy-Cornwell Site (48CR4001), Great Divide Basin, Wyoming* by Cody Newton and Ryan Byerly
- 14 *Carved in Bone: Experiments in Turkey Bone Bead Production* by Erin E. Parsons and Vlisha Stanerson

5:00 PM **Business Meeting - SOUTH ROOM**

9:00 PM **RMAC Live music at Tomichi Tavern**

Saturday, October 10, 2009

8:00 AM **Mountaineer Field Trip - Everyone is invited - transportation provided at THE ASPINALL-WILSON CENTER**

Lunch 12 - 1:20 PM - Check out downtown for great lunch specials!

Time NORTH ROOM: Afternoon (Session 5)

General Session

- 1:30 *Small Lithic Sources in the Antelope Gulch Area, Central Colorado* by Kevin D. Black
- 1:50 *New Quartzite Sourcing Studies, Gunnison Basin, Colorado* by Bonnie Pitblado and Carol Dehler
- 2:10 *Choose Your Wood Wisely: Bigger Isn't Always Better* by Katherine Puseman
- 2:30 *Update on the State of the Art of Microscopic Charcoal AMS Dating* by R.A. Varney
- 2:50 *Spatial Considerations for Recent Research at Fort Garland* by Jessica LaCasse and Greg Pierce
- 3:10 **Break**



- 3:30 *The Great Divide Project: A Look At Homesteading Efforts in Northwestern Colorado in the Early 20th Century* by Kae McDonald
- 3:50 *Mr. Granger's Station: Studies at a Way-Station on the Overland Trail in Wyoming* by Russell L. Tanner
- 4:10 *The Politics of Preservation at the Prison Site* by Kevin Jones and Andrew T. Yentsch
- 4:30 *High Altitude Cultural Resource Survey of the Cloud Peak Wilderness of the Bighorn National Forest, Wyoming: An Update* by Bill Matthews
- 4:50 *The Use of Wood in Formative Sites in Northwestern Colorado ca. 500 - 1500 BP* by A. Dudley Gardner, William R. Gardner, Gabrielle Elliott, and Lara Pasacreta

Time **SOUTH ROOM: Afternoon (Session 6)**

Symposium: Folsom in the Upper Gunnison Basin: Recent Research at the Mountaineer Site

- 1:30 *The Environment of the Folsom Occupation in the Gunnison Basin* by David J. Meltzer
- 1:50 *The Geomorphological History of the Mountaineer Site: A Look at Natural Biological and Geological Processes and Site Formation* by Casey Dukeman
- 2:10 *Block X: Comparing the Natural and Cultural Signatures of the Mountaineer Site* by Andrew Boehm and Joanna Robertson
- 2:30 *Investigations at Block C of the Mountaineer Site* by Brian N. Andrews, David J. Meltzer, Brooke M. Morgan, Andrew Boehm, and Joanna C. Robertson
- 2:50 *Funky Mineral in Folsom Context: Opalide Distribution at the Mountaineer Site, Block C Locality* by Brooke M. Morgan
- 3:10 **Break**
- 3:30 *Folsom Site Structure and Function at Mountaineer: A Comparison of Area A and Area D* by Brian Andrews
- 3:50 *Folsom Structures and Assemblages at the Mountaineer Site, Gunnison, Colorado* by Mark Stiger

General Session

- 4:10 *Pre-European Asare and Their Notions of Time* by Jenna Ely
- 4:30 *Infant Feeding and Malnutrition from Mali, Brazil and the United States* by Megan Jamison
- 4:50 *Ethnography and Service Learning in San Luis, Colorado* by Lynn Sikkink

Saturday, October 10 Poster Session: Afternoon 1:30 - 4:30 - EAST TENT

- 1 *Obsidian Sourcing by Current Archaeological Research, Inc.* by David C. Wolfe, and Michael A. Frankus
- 2 *Geological Mapping of the Curecanti Area: An Investigation of the Relationship between a Prehistoric Quarry and its Geologic Setting* by Jerome Bucceri, Melissa Jackson, Layne Morris, Carol Dehler, and Bonnie Pitblado
- 3 *5GNI Artifact Density Mapping Project* by Zech Jinks-Fredrick, Barbara Webster, Anna Nicol, Travis Hansen, Skye Cooley, Bonnie Pitblado, Carol Dehler
- 4 *Deception Creek Points* by Gary Collins
- 5 *Metal Projectile Point Survey of the Interior West: Preliminary Results and Directions for Future Research* by John Kennedy
- 6 *The Red Rock Road: Protohistoric Archaeology along the Northern Colorado Front Range* by Ashleigh J. Knapp and Jason M. LaBelle
- 7 *They Were Executed on Sunday Morning October 2nd, 1853: The Archaeology of a Mass Grave and One Event of the Walker War, Utah Territory* by Ronald J. Rood and Derinna V. Kopp
- 8 *Masters Degree Program in Cultural Resource Management Archaeology at Utah State University* by Steven R. Simms, Patricia M. Lambert, Bonnie L. Pitblado
- 9 *Wyoming Pictograph Pigments* by Michael T. Bies, Marie Bovee and Danny Walker
- 10 *Housepit Sites in the Jonah Field in Southwest Wyoming* by William Current
- 11 *Sand Sheet Formation at the Dawson Site, A Paleoindian Camp in the San Rafael Desert, Utah* by David A. Byers



- 12 *A Unique Archaic Aged Infant Burial from Rich County, Utah* by Ronald J. Rood, Derinna V. Kopp, Jack Pfertsh, Matthew Landt, Rand Greubel and Andrew Yentsch
- 13 *Using an Archaeological Predictive Model to Design Sample Surveys Following Forest Fires* by Paul Burnett and Lawrence C. Todd
- 14 *The Great Basin and Central Western Argentina: Parallels in Culture Process and Interests in Archaeological Method and Theory* by Adolfo F. Gil, Steven R. Simms and Gustavo Neme
- 15 *Investigating the High Country: A GIS-Based Synthesis of Colorado Archaeology Above 3,000 Meters* by Annie E. Maggard and Jason M. LaBelle

6-9:00 PM **Banquet and Keynote Speaker:** *Deadwood, Global Warming, and High Elevation Archaeology in Western North America - Donald Grayson*

9:00 PM *RMAC After Party: Poverty Gulch (bluegrass band) at Tomichi Tavern*

Sunday, October 11, 2009

9:00 AM **Field trips:** *Rock art tour and San Luis Valley Peeled Trees - sign up during registration*



PLENARY LUNCHEON - Free to conference attendeesFriday Oct. 9th 12:15PM

ORGANIZER: Brian Andrews (RSU)

**CULTURAL INTERACTION AND CONTINUITY BETWEEN
THE ROCKY MOUNTAINS AND ADJACENT REGIONS****ABSTRACT:**

This informal lunchtime discussion will focus on how cultures from the Great Basin, Great Plains, and Rocky Mountain regions relate to each other, and how these relations change through time and as a result of environmental changes. Are there distinct cultures present in these different physiographic regions, and if so, when and why did they develop? What role do environmental changes (such as Altithermal warming during the Middle Holocene) play in driving cultural development and interaction in these regions? What methods can we use to investigate these problems?

KEYNOTE ADDRESSSaturday Oct. 10th 7PM

ORGANIZERS: Ruth Dukeman, LuAnna Bryant (WSC), David Byers (MSU)

***DEADWOOD, GLOBAL WARMING, AND HIGH ELEVATION
ARCHAEOLOGY IN WESTERN NORTH AMERICA*****DONALD K. GRAYSON***UNIVERSITY OF WASHINGTON*

"My prime interests lie in understanding the interrelationships between people and the biotic landscapes with which they interact. My technical specialization in zooarchaeology provides me with one means of addressing this general area, while theory drawn from both biogeography and evolutionary ecology provides the conceptual tools I have used to understand those interrelationships. Although my research is driven more by questions than by time periods or geography, the bulk of my work has involved the latest Pleistocene and Holocene of the Great Basin (western United States) and Pleistocene southwestern France, areas in which I plan to continue working in the future." - *Donald Grayson (U.W. website)*



SYMPOSIA ABSTRACTS**Folsom in the Upper Gunnison Basin: Recent Research at the Mountaineer Site.**

Organizer: Brian Andrews

Diagnostic Folsom artifacts were first discovered nine years ago at the Mountaineer site, located atop Tenderfoot (or "W") Mountain, just outside the town of Gunnison, Colorado. Subsequent surface collections and excavations have revealed an extensive Folsom occupation at the site. Large block excavations are underway in five separate areas on the site - at least three of which have been shown to contain evidence of habitation structures. The papers in this session report the current results of this work as well as a summary of issues regarding paleoenvironmental conditions, site function, reoccupation, and contemporaneity between site areas.

Modern Scanning Electron Microscopy (SEM) and Archaeological Analysis: A Compilation of Experiments in SEM imaging and X-Ray Fluorescence (XRF)

Organizer: Casey Dukeman

This symposium presents the results of experimentation done by students in ANTH 397: SEM in Archaeology, a research seminar in anthropology offered at Western State College every spring. Students enrolled in the course were charged with designing and implementing experiments that specifically focused on some of the ways in which modern SEM and computing technology could be used (cost and time effectively) in archaeological analyses. Studies focused on anything from developing new ways to implement modern computer imaging technology to employing X-Ray fluorescence to perform chemical (non-destructive) analyses on artifacts.

Current Research in Northwestern Colorado

Organizers: Alan D. Reed, Robyn Morris, Bureau of Land Management, and Michael D. Metcalf.

Since the early 1990s, archaeological excavations have been conducted in northwestern Colorado and adjacent areas of southern Wyoming to mitigate the effects of natural gas pipeline construction. Three pipeline projects (CIG-UBL, WIC Piceance, and REX) follow the same general route and were the impetus for substantial archaeological excavations at 41 prehistoric sites and limited data recovery at many others. This body of work supplements data gathered during a smattering of other excavation projects conducted for coal and other project types. Two of the pipeline projects also incorporated joint efforts to refine regional paleoenvironmental models. This symposium represents one of several efforts to synthesize the archaeological data from the three projects within the context of other recent archaeological and paleoenvironmental investigations conducted in the region. Included are papers regarding several lines of paleoenvironmental research, such as studies of fen and lake core pollen, wood rat middens, and erosional sequences. Presentations will also focus on some of the more important



sites excavated, ranging from the Paleoindian to Protohistoric sites. Other papers will include diachronic studies of settlement, subsistence, and technology.

Anthropological Research in the Gunnison Region: Posters by Western State College Anthropology Students

Organizer: Lynn Sikkink

Using methods and theory developed during the Western State senior capstone course, students conducted independent research projects to explore anthropological concepts, local populations, and the link between theory and data. These projects resulted in posters that present findings in both visual form and via text.

PRESENTATION ABSTRACTS

Adams, Richard, Bryon Schroeder and Orrin Koenig

Paper: Prehistoric Alpine Villages in the Wind River Mountains, Wyoming

While high altitude (>3170 m asl) prehistoric villages have been well-documented in the Great Basin of North America, less well known are several alpine villages in the Middle Rocky Mountains of northwest Wyoming. Like Great Basin alpine villages, Wyoming's alpine villages are fairly recent (generally <1000 years), contain evidence of hunting and gathering, and were most likely occupied by Numic speakers. Recent work at two of the eight known alpine villages is summarized and placed in the context of well-known Great Basin sites like Alta Toquima and the White Mountain Villages. Radiocarbon dates from two of Wyoming's alpine villages have ramifications for the Numic expansion model.

Anderson, Jessica, Erin Parsons and Vlisha Stanerson

Paper: Tubes and Spirals: An Analysis of Bird Bone Beads from the Weinmeister Site

Located in Windsor, Colorado, the Weinmeister site (5LR11274) is a predominately Woodland/Early Ceramic period site and offers an extensive look at the prehistory and recent history of Windsor and the greater Poudre River basin. The project area is located on a series of bluffs that parallel Fossil Creek and the Cache la Poudre River, and was extensively collected (1960s-1990s) by an avocational archaeologist while it was privately owned farmland. This paper presents a preliminary descriptive and quantitative analysis of 530 tubular bird bone beads collected from a silage pit located along the toe slope of the bluffs. These data are further contextualized within other bead assemblages from mortuary and camp sites of the Plains Woodland tradition in Colorado.

Anderson, Lesleigh



Paper: Holocene climate of the Upper Colorado River: Decade-to-Century Scale Variability from Small, Calcareous Alpine Lakes

Oxygen isotope data from strategically selected lake sediments in alpine, headwater regions of the Upper Colorado River extend our understanding of Holocene hydroclimate variations beyond the tree-ring record. Sediment cores spanning the Holocene were collected along a depth transect in Bison Lake (39.764°N, 107.346°W, 3255 m a.s.l.) on the White River Plateau, CO. The oxygen and hydrogen isotope ratios of modern lake-water, streams, springs and snow indicate that Bison Lake experiences minor summer evaporation of snowmelt and groundwater recharge. Water vapor and storm trajectories influence lake-water $\delta^{18}\text{O}$ through time. Bison Lake has a clear signal that indicates a long-term -4.5‰ shift in $\delta^{18}\text{O}$ since ~4000 cal BP, with century-scale -3‰ excursions and the lowest values of the Holocene during the last two millennia. The Bison Lake data are a record of snowmelt/groundwater variations reflecting changes in seasonality of moisture (summer monsoon versus winter northwest flow).

Andrews, Brian

Paper: Folsom Site Structure and Function at Mountaineer: A Comparison of Area A and Area D

One of the keys to understanding Folsom behavioral processes at the Mountaineer site is determining the temporal and functional relationship between different areas of the site. Are the areas the result of a single contemporaneous event with segregated activity areas? Or are they representative of two or more separate occupations that may or may not have served the same purpose? To begin to answer these questions, a detailed analysis of artifact assemblages and spatial patterning within and between two areas of the site was performed. Differences in raw material usage, tool resharpening intensity, spatial patterning, cluster assemblage homogeneity suggest that the occupations of Area A and Area D were likely separate events, with Area A representing a relatively long-term occupation, and Area D representing a shorter-term 'hunting camp' type occupation.

Andrews, Brian N., David J. Meltzer, Brooke M. Morgan, Andrew Boehm, Joanna C. Robertson

Paper: Investigations at Block C of the Mountaineer Site

Block C at the Mountaineer site currently consists of an eight by nine meter contiguous, but relatively shallow excavation. Work began in this area of the site in 2004, continuing into the 2005 season. During this initial phase, crews from WSC recovered a rich artifact assemblage consisting of Folsom projectile points, numerous other tool types, thousands of flakes, burned daub, and bone (including fragments of *Bison antiquus* dated to 10,440 ± 40 BP). During the summer of 2009 SMU returned to Block C to continue the excavations. A four by eight area within the WSC excavation was taken down to bedrock, with attention focused on a possible hearth area and segments of what appear to be a stone lined habitation structure. The preliminary results of our analysis of the prior WSC collections and the work conducted during 2009 are presented. Our initial spatial analysis of flaked stone, daub, and bone support the hypothesis that a Folsom habitation structure occupied the area of Block C.



 Baker, Steven G., Jeffrey S. Dean and Ronald H. Towner

Paper: The Old Wood Calibration Project and the Vanishing Ute Prehistory of Western Colorado.

"The Old Wood Calibration Project" (OWCP) is a collaborative effort between Centuries Research, Inc. and the Laboratory of Tree-Ring Research at the University of Arizona. The project was initiated in 2004 and investigated a suspected "old wood effect" in the radiocarbon and tree ring dating of hearth fuel woods from archaeological sites in western Colorado.

The OWCP has demonstrated that 1000+ year-old pieces of dead wood suitable for burning are present on the current landscape and that elements more than 600 years old are relatively abundant. It has also empirically demonstrated that the probability is high (virtually 100 percent) that radiocarbon or tree ring dates from pinion or juniper charcoal from hearths or other thermal features will be significantly older than the human acts of building and maintaining a fire with such pieces of dead wood. These ages will commonly be significantly earlier than the ranges indicated by even the two sigma confidence levels in radiocarbon dating. Such confidence levels alone can thus no longer be relied upon for approximating the dates of occupations. In the project's three study areas of Colorado's western slope three different minimal mean-age correction factors were determined. These range from 482 years on the Douglas Creek Arch to 219 years further south in the Montrose area.

Regional radiocarbon dates based on hearth fuel woods can accordingly no longer be accepted at standard confidence levels but must be adjusted by adding correction factors. The OWCP suggests that the dating chronologies currently in use relative to the occupations by the Fremont and Ute significantly overstate their age and that they will likely have to be moved substantially forward in time. Even when minimal correction factors are applied to the radiocarbon dates for bona fide Ute sites, the archaeological record for the Ute presence in western Colorado moves forward in time to the very late prehistoric or protohistoric contexts. Our findings thus cast serious doubt on the likelihood of any significant time depth in the regional occupation record of the Ute speakers. This appears to be the reason why, despite our better understanding of the Ute archaeological culture, evidence of such an older Ute occupational record has to date proven to be so elusive. Beyond Colorado the OWCP has major implications for the prehistoric chronometric record of the Desert West. Plans are now underway to further test these findings and to carry the research into additional areas of the Colorado Plateau in western Colorado and eastern Utah.

 Beidle, Larry, Mary Van Buren, Steven Baker, Bonnie Gibson, Michelle Hansen, Rachel Kline, Annie Maggard, Cashel McGloin, and Josh Weinberg

Poster: The Corner Saloon: Middle Class Comforts in a Working Man's Bar

The Corner Saloon operated in the historic mining town of Lake City, Colorado from 1902 until 1912 when it burned down two days after Christmas. Although a contemporary newspaper report indicates that the more expensive goods were salvaged, much of the saloon's contents collapsed into the cellar which was excavated 65 years later by



Steven Baker as part of a salvage project conducted by CRI, Inc. In 2009 the Corner Saloon assemblage was analyzed by a team of CSU graduate students. This poster presents the results of that analysis, and argues that rather than being the antithesis of Victorian domesticity, the Corner Saloon, and others like it, provided working men with many of the amenities of a middle class home.

Bies, Michael T., Marie Bovee and Danny Walker

Poster: Wyoming Pictograph Pigments

This poster presents the results of analysis of the pigments utilized to produce pictographs at Legend Rock Petroglyph Site (48HO4) and other sites in Wyoming. This includes analysis of pigments from several sources as well as pigments recovered from site excavations.

Black, Kevin D.

Paper: Small Lithic Sources in the Antelope Gulch Area, Central Colorado

In eastern Chaffee County, Colorado the well-known Trout Creek chert source 5CF84—is defined by outcrops, quarry pits, and related workshop debris covering at least 1,000 ac (405 ha). This dendritic chert or jasper varies in color from yellowish brown to maroon and is widely recognized as having been a major source of toolstone since at least Folsom times. A growing body of data, however, shows that many cherty materials similar in macroscopic appearance to Trout Creek occur in a series of outcrops spread through the southern Mosquito Range, adjacent portions of South Park, and the Arkansas River canyon in Chaffee, Fremont, and Park Counties. Results from the on-going Antelope Gulch Survey project add to the evidence for local use of non-Trout Creek cherts and jaspers, many of which outcrop in exceedingly small patches very nearly exhausted by prehistoric procurement activity.

Boehm, Andrew and Joanna Robertson

Paper: Block X: Comparing the Natural and Cultural Signatures of the Mountaineer Site

The Mountaineer Site sits atop a mesa in the Gunnison Valley and is recognized to contain evidence for Folsom-aged structures. These structures are identified primarily by the spatial distribution of artifacts, daub, and bedrock. Though compelling, there had been no examination of non-culturally modified areas of the mesa to test this evidence. Excavations were carried out in the summer of 2009 to fill this data gap. This preliminary report compares the artifact, rock, and bedrock spatial distributions between a suspected house feature in Block C and a non-cultural area, Block X.



Bollans, Abbie

Paper: Paleoethnobotanical Evidence of Food Exploitation in Northwestern Colorado and Southwest Wyoming: Modeling Subsistence through Time

Pollen, starch, and macrobotanical data collected from sites located within the CIG-UBL, WIC, and REX project areas are evaluated to determine any changes in plant food exploitation through time, and this evidence is used to support patterns of subsistence within the region from the Paleoindian era through the Protohistoric period. This analysis focuses on the presence/absence and ubiquity of economically important plants to determine if any shifts in plant use through time can be attributed to climatic factors or if they reflect changes in subsistence strategies. Preliminary evidence suggests that plant subsistence strategies were focused on the reliance of a few wild, economically useful species through time; however, the presence of corn (*Zea mays*) pollen and starch residues may indicate cultivation or trade of this domesticate within the project area during the Archaic era.

Boyd, Joshua

Paper: The Utility of Scanning Electron Microscopy in Locating and Determining Patterns of Use-Wear on Quartzite Tools

The investigation of quartzite use wear is very important to understanding pre-historic cultural activities and patterns within and across sites. With the abundance of quartzite found in the Rocky Mountain lithic scatters this line of inquiry is worth the effort of examining further with the use of a scanning electron microscope. Scanning electron microscopy might prove significant in determining use wear on quartzite artifacts by providing a finer image showing texture and higher magnification opposed to low powered light microscopy, and will greatly increase understanding of prehistory through lithic use wear studies. As a lithic raw material quartzite is a dense and hard rock which leaves little in the form of use wear. However in comparison to obsidian and chert it is often unrecognizable and overlooked. Polish, striations, chipping, and edge attrition produced during various intervals of leather scraping activity will be the focus of observations.

Brown, T. Christopher

Paper: Paleoenvironmental Reconstruction of SE Idaho: A Timeline for Paleoindian Archaeology

Archaeology spawned by the Southeastern Idaho and Northern Utah Paleoindian Research Project (SINURP) has produced a need for syntheses of paleoenvironmental information in the region. This paper provides a brief 18,000 year environmental history for SE Idaho, thereby illustrating those temporal diagnostic variables that would have influenced the foraging economies in the region. Given SE Idaho's physiographic diversity, this timeline accounts for spatial variability by circling the project area with reconstructions done within and around its defined



parameters. The time periods of most drastic change rest between 14,000 and 7,000 BP. However, within and around these 7,000 years, changes in specific ecological templates do not always correspond with the changes observed in other reconstructions. As such, regional archaeological research will have to assess the differential utility of a reconstruction towards establishing local environmental context.

Bucceri, Jerome, Melissa Jackson, Layne Morris, Carol Dehler, and Bonnie Pitblado

Poster: *Geological Mapping of the Curecanti Area: An Investigation of the Relationship between a Prehistoric Quarry and its Geologic Setting*

Investigating the relationship between prehistoric quarry sites and their geologic settings can yield important information regarding desirable traits of the lithic material from the perspective of ancient knappers.

In the Gunnison Basin of Colorado, the dominant composition of chipped stone assemblages is quartzite. A major quarry in this area, comprising archaeological sites 5GN1 and 5GN220 (Carpenter Ridge and Big Mesa quadrangles), is rich with quartzite lithic material and has been mapped as deriving from two local geologic units: the Junction Creek and Morrison Formations. Both are Mesozoic units dominated by sandstone with localized quartzite of unknown distribution.

As part of a larger study by the 2009 Utah State University Archaeological Field School, we generated a 1:12,000-scale geologic map to help us understand the distribution of the local quartzitic bedrock with respect to the sandstone units. We also compared the results of our geologic mapping with quartzite artifact density plots developed for the same area (see poster by Jinks-Fredrick et al., RMAC 2009) to assess the relationship between them.

Preliminary results indicate that the distribution of quartzite in the two sandstone units is dominantly associated with local faults. The faults provided a conduit for silica-rich fluids to flow and alter the sandstone to quartzite. The mapped quartzite zones correlate with the highest artifact densities, showing a relationship between prehistorically quarried quartzite and fault zones in Mesozoic sandstone.

Burnett, Paul and Lawrence C. Todd

Poster: *Using an Archaeological Predictive Model to Design Sample Surveys Following Forest Fires*

Given the massive acreages burned annually in the forests of the western United States, there is a need to mitigate the associated impacts to the archaeology of the region. The main impacts are physical destruction of heritage resources and accelerated looting made possible by increased ground visibility. While this destruction is clearly defined and predictable, systematic mitigative approaches are lacking. The first step toward this post-burn mitigation is the identification of heritage resources through surface surveys. This poster outlines an approach to defining survey areas using an archaeological predictive model that is both systematic and flexible to budgetary limitations.



Byerly, Ryan M.

Paper: Recent Work at the Coffin Bison Kill in Northern Colorado

A. Lynn Coffin's excavations at the Coffin Bison Kill (5JA7) yielded thousands of Late Prehistoric/Protohistoric projectile points associated with bison, antelope, and elk bone along a natural granite boulder wall north of Watson Mountain. Based on these finds, and given their location, Coffin reasoned the locality was used to trap and slaughter game animals en masse on multiple occasions, perhaps over successive years. However, save a small tool collection donated to the Fort Collins Museum, representing less than a quarter of the extant assemblage, no other material and no other records are known from Coffin's investigation. Likewise, no subsequent assessment of site integrity or site use has ever been pursued. This paper details the results of recent work aimed at alleviating these deficiencies in the regional archaeological document and further elaborating on the role of the site area in understanding aboriginal ethnogeography, 19th century western expansion, and faunal biogeography.

Byers, David A.

Poster: Sand Sheet Formation at the Dawson Site, A Paleoindian Camp in the San Rafael Desert, Utah

The Dawson Site (42EM3695) is located in the San Rafael Desert, Utah. A survey of the site documented a large, dense lithic scatter containing abundant debitage, numerous tools and Paleoindian projectile points. While the cultural material is currently eroding out of a thick sheet of eolian sand, the age of these sediments and consequently the depositional context of the Paleoindian material was unclear at the time of discovery. This poster presents OSL dates for the sand sheet at the Dawson Site. These dates suggest that the eolian sand is no older than late Holocene in age and the Paleoindian artifacts likely rest on a deflated surface covered by much younger sediments.

Cannon, Kenneth P.

Poster: Paleoecology of Early Holocene Bison in the Greater Yellowstone Ecosystem: An Example from the Horner Site, Park County, Wyoming

Stable isotope studies have increasingly been shown to be an important tool in understanding animal ecology and paleoenvironmental reconstruction. In this study, I report on the results of downturn sampling from the lower third molars of three adult bison (aged 2.6, 3.6, and 4.6 years) from the early Holocene Horner site. In particular I will report on the results of stable carbon, oxygen, and strontium isotopes from these individuals and the implication for understanding the ecology of three cohorts from this site. This data is part of a larger study to investigate the ecology of Holocene bison in the Greater Yellowstone Ecosystem.



 Carney, Robert

Poster: Heaven Knows Me Best: Narration of Queer Identity in the Afro-Cuban Religion of Santería/Lukumí

My research explored how homosexual practitioners of the Afro-Cuban religion of Santería narrated their sexual and gender identities in relation to the Orishas, the ancient African deities. These santeros (practitioners of Santería) understood the sexual and gender aspects of their identity as having divine connotations as well as erotic and mundane, challenging the ways we conceptualize sexuality and gender, as well as negotiating a space for their identities within the religion. The santeros I interviewed narrated their sexualities as being more capable of manifesting the Orishas through "mounting", or ceremonial possession of a practitioner by the Orishas. Orishas chose queer practitioners to mount more often because the practitioners were able to provide a better gender habitat for the Orisha to manifest its own being and power. However with regard to transgender and transsexual identity, dressing across genders and hormonal or surgical procedures to alter one's sex were seen as interfering with the Orishas during iyawo, the one year period after the initiation ceremony, where practitioners are devoted to a specific Orisha. "Working on the body" was said to be prohibited because it interferes with developing a relationship with the Orisha one is devoted to. Practitioners were said to instead focus on their sexual and gender identities beyond the bodily manifestations.

 Collins, Gary

Poster: Deception Creek Points

This paper focuses on surface finds of Deception Creek points in Northwest Colorado, Southwest Wyoming, and Northeast Utah. The author hopes that this paper will aid in further defining of the Deception Creek projectile point type.

 Cummings, Linda Scott and Melissa Logan

Paper: Update on Organic Residues: FTIR Lives On!

During the past 2 years we have had the opportunity to examine more FCR, ceramic sherds, and sediments. Food signatures are complex! We are identifying molecules of fats/lipids, polysaccharides (carbohydrates), proteins and other substances, as well as probable foods cooked. Contamination, introduced as a result of the curation process, contributes to complex signatures. We continue to experiment with ways to remove contamination added during in the archaeological laboratory and/or during the curation process.



 Current, William

Poster: Housepit Sites in the Jonah Field in Southwest Wyoming

The area known as The Jonah Field in southwest Wyoming has produced hundreds of radiometric dates, numerous housepit and resource processing sites. The vast majority of these sites fall into the archaic periods, but all time periods from Paleoindian through the Late Prehistoric are present. This area also has produced the highest density of housepit sites (one containing the oldest document burial in the State of Wyoming) in the state. All of these housepit sites represent multiple occupations, again primarily corresponding to most phases of the archaic period. This poster simply presents these data for your information and consideration and contemplation.

 Dombrowski, George

Paper: Experimenting with Accelerating Voltage Vs. Sputter coating on Burned Biological Specimens

Although the technology has existed for sixty years, electron microscopes are still underused in archaeology. Elemental analysis of artifacts, using X-Ray Fluorescence (XRF), gives archaeologists clues to the past by identifying any possible residues on artifacts. Charred bone is a common artifact found on archaeological sites and is useful in identifying species, inferring butchering and processing activities and yielding absolute dates. Could bone also tell archaeologists what fuel was used to burn it? By taking advantage of a scanning electron microscope's elemental analysis capabilities archaeologists may be able to determine the fuel source. Unfortunately, there is the problem of sample preparation. Most biological samples require metal sputter coating to generate a sufficient enough charge to produce an adequate (XRF) signature. This technique not only damages the surface but can sometimes weaken the integrity of the artifact. However, recent experiments may show that increasing accelerating voltage could be employed to overcome this problem and allow for a more precise elemental signature.

 Dukeman, Casey

Paper: The Geomorphic History of the Mountaineer Site: A Look at Natural Biological and Geological Processes affecting site formation.

It is widely understood by archaeologists that a vast array of natural biological and geologic processes continuously effect the formation history of a site. This is especially true in the case of the Mountaineer Site - a high elevation Folsom residential occupation, where soil contexts are quite shallow. However, as we have seen in many site formational studies, understanding the impact these processes have over time and space can help us to further control natural variables that influence the interpretation of a site. The Unique location of Mountaineer provides



for an interesting set of natural processes that affect the site's formation history and in turn, enrich our interpretation of the cultural processes that took place on Tenderfoot Mountain roughly 10,400 years ago.

Dukeman, Casey

Paper: Revisiting the SEM: A Series of Experimental tests on the Utility of Modern Scanning Electron Microscopy in Archaeological Analysis

Scanning electron microscopy has always been of interest to archaeologists. However, the bulk of the studies, most done previous to recent advances in computing technologies, have come to similar conclusions: SEM analysis can be a useful, but often expensive operation costs and high time investments far exceed its analytical utility. However, the anthropology department at Western State College has the good fortune to have an SEM available for student and faculty research use at a considerably low cost. In eliminating the cost effectiveness piece of the SEM argument regarding its analytical utility, new experiments could be designed to test problems of time effectiveness, as well as artifact destruction in an attempt to reevaluate the SEM's utility in modern archaeological analyses.

Ely, Jenna

Paper: Pre-European Asare and Their Notions of Time

Asare people, who originate in the forests of Ghana, Africa, speak the native language of Akon. Looking at the Asare culture through the eyes of an informant, the co-author and I investigated pre-European contact words, uses, and assumptions of time. The informant, who speaks Akon and is from Ghana, came to the United States less than a year ago. By using this point of view, the co-author and I were able to take an in-depth look at the Asare culture as well as the changes to their culture after European contact.

Ely, Jenna

Poster: Women Sodalities and Their Role on the High Plains

While often overlooked, women sodalities have had much influence on the lifestyles of the high plains. Within this poster, a definition, practical use, and social examples of sodalities will be given. More specifically, a comparison of men and women sodalities will be followed by three examples of such on the plains. There is much more to Plains Indian home-life than most realize. By moving past our preconceived notions of a *woman's role*, I hope to show that women of the plains were the proactive, powerful, passionate foundation to the inner social workings of the Plains Indian societies.



Gardner, A. Dudley, William R. Gardner, Gabrielle Elliott, and Lara Pasacreta

Paper: The Use of Wood in Formative Sites in Northwestern Colorado ca. 500 - 1500 BP

In this paper we will look at how wood was used in constructing Fremont structures in northwestern Colorado. The Fremont were excellent wood workers. We will present the types and varieties of wooden structures we have recorded in the region and look at how wattle and daub and stone were used in conjunction with wood in the years between 500 and 1500 BP.

Germaine-Richings, Sam

Paper: Archaeological Investigations of Duffy Shelter (5MF435): A Stratified Rockshelter in Northwestern Colorado with Possible Evidence of a Fremont Forager Occupation

In light of recent interpretations of Fremont subsistence and social organization, and the necessity of conserving Native American rock art, a report on the archaeological investigations and a review of the occupational evidence of Duffy Rockshelter was recently conducted. The original archaeological investigations revealed the presence of a rock art panel with Historic Ute affiliation and stratified, multi-component deposits spanning 2000 years BP. A reevaluation of the archaeological deposits concurs with the original conclusion that a possible Fremont Cultural component is present at the site. The remains of Uinta Gray potsherds and diagnostic projectile points strengthen this assertion, and suggest that distinctive, short-term occupations of northwestern Colorado occurred concurrently by small groups of mobile, hunter-gatherers.

Gil, Adolfo F., Steven R. Simms and Gustavo Neme

Poster: The Great Basin and Central Western Argentina: Parallels in Culture Process and Interests in Archaeological Method and Theory

Contemporary ecology employs comparisons among ecosystems to explore how similarities and differences in circumstances shape alternative human adaptive strategies. Central West Argentina and the Great Basin exhibit similarities and differences that present opportunities to investigate subjects such as the forager-farmer transition, forager mobility, settlement pattern and group size, technology, and the evolution of social complexity. The mutual exploration of large-scale ecological problems by researchers working in distant geographic areas is consistent with an evolutionary analysis of cultural causation at scales beyond culture history.



 Greer, Mavis and John Greer

Paper: Weeksville Pictographs, Western Montana: Prehistoric and Historic Importance of Location

Relatively few rock art sites are in the western Montana Rocky Mountains, not because of a lack of potential locations, but apparently because messages were left at only certain selected locations. The Weeksville site has a combination of Columbia Plateau style prehistoric pictographs and remnants of historic roadside rock-painted signs. Cleaning rock art sites of graffiti, usually defined as any modern intrusions, is popular today, but this site is a good example where removal would cause more damage than leaving it. This is one of the few historic rock signs still remaining in the region, and it covers aboriginal pictographs. This site suggests why certain locations are chosen for both rock art and modern paintings.

 Greubel, Rand A.

Paper: An Appraisal of Ten Millennia of Lithic Reduction Practices in Northwestern Colorado and South-Central Wyoming

Recent excavations across portions of the Uinta, Piceance, and Wyoming Basins in northwestern Colorado and south-central Wyoming have yielded new insights into prehistoric lithic reduction practices and strategies in the region. The data encompass well-studied and tightly dated assemblages from components collectively spanning 10,000 years, from Late Paleoindian times through the Protohistoric period. These data, combined with others derived from excavations conducted from the early 1980s to after the turn of the century, are considered both synchronically and diachronically. The results shed light on how the organization of lithic technology articulated with mobility, subsistence, and settlement systems in the region and how lithic strategies changed through time to accommodate shifts in settlement and subsistence practices.

 Hahn, Ardeth

Poster: The Crooked Creek Site (48JO108)

The Crooked Creek Site (48JO108), located in southern Johnson County, Wyoming, was originally recorded in 1978 as part of a class III archaeological survey for a conventional oil well. The site was described as prehistoric and historic petroglyphs and a possible burial cairn located on sandstone cliffs approximately 350 meters from the center of the well pad. During the summer of 2009, BLM Buffalo Field Office archaeologists revisited the site completing a new site form and documenting the site in detail. A poster presentation documents the change in site condition in the past 30 years, the current site recording methods used, and makes some preliminary interpretations of the site.



Harrell, Lynn, James H. Speer and Karla Hansen-Speer

Paper: The Bridger Antelope Trap: Preliminary Results of Dendrochronology Study

The BLM Kemmerer Field Office is conducting a dendrochronology study of the Bridger Antelope Trap, an early historic site in southwest Wyoming that is listed on the National Register of Historic Places. Although early settlers described the communal trapping operation by Native American tribal groups, there is no other information to demonstrate the trap's age of construction, its use and maintenance, and its time depth. The dendrochronology study is being accomplished by Indiana State University Biogeography and Dendrochronology Laboratory, who collected a total of 200 tree ring samples which are currently under analysis. The samples included core and cross section samples from the old juniper wood in the remnants of fence that define the trap and old axe-cut stumps in the adjacent juniper stands, as well as core and cross section samples from live juniper trees and sagebrush within and near the trap. Analysis of the samples collected in 2008 produced an early date of A.D. 1754 in the master chronology from live juniper. While the analysis of the 2008 samples from the old trap wood was inconclusive due to the weathering and poor preservation, a preliminary estimate of the early 1800's is suggested as an outside date for one sample. The study of the site is continuing through analysis of tree ring samples collected in 2009. This presentation will provide a summary of the preliminary results of dendrochronological analysis, as well as other information acquired by the BLM about the Bridger Antelope Trap, associated features, and artifacts.

Holen, Steven R. and Kathleen Holen

Paper: Experimental Replication of Mammoth Limb Bone Reduction Patterns Using Elephant Bone: Evidence for Last Glacial Maximum Humans in North America

Two separate experiments are reported in which elephant femurs were broken and flaked to replicate mammoth bone breakage patterns observed at several Last Glacial Maximum mammoth sites in the Central Great Plains. Video and still photography documents that adult elephant limb bone is difficult to break with hammer stones and that the use of an anvil facilitates the process. This research suggests that observed mammoth bone breakage patterns are indications of human technology, because no natural taphonomic process can break fresh cortical mammoth limb bone in these patterns. Mammoth sites with these breakage patterns are therefore diagnostic of human presence.

Jamison, Megan

Paper: Infant Feeding and Malnutrition from Mali, Brazil and the United States

Infant feeding practices are important to understand because children develop rapidly within the first several years of their lives; if malnourished during infancy, the adverse health conditions usually cannot be reversed. The



study of infant feeding practices require anthropologists to use a biocultural perspective. Though the nutrition of infants must fulfill a biological requirement, the practices surrounding infant feeding vary in uniquely cultural ways. In poorer, less developed countries, infant feeding practices can lead to infant malnutrition because the mothers lack basic nutritional and health education. However, in more developed countries, infant feeding does not result in such high rates of malnutrition due to the support and knowledge provided by biomedicine. In this presentation, I will explore the beliefs and attitudes towards infant feeding and malnutrition from three countries: Mali, Brazil, and the United States. This cross-cultural data has implications for applied anthropology because it provides an understanding of how feeding practices have cultural features, but also how new nutritional information might be conveyed.

Jamison, Megan

Symposium Poster: Creationism and Evolution at Western State College

This poster will explore the views that Western State College students have about both creationism and evolution. An eleven-question survey was distributed to a cross-section of classes throughout campus in an attempt to gather a diversity of majors and student statuses. My analysis focuses on several specific questions from the survey in order to determine if certain majors are inclined to believe in one or the other, or possibly a combination of both. I also look at class standing to see if freshman beliefs vary from senior beliefs, and which sources might influence these beliefs.

Jennings, Sarah

Paper: 5MF1915: Snapshots of Life along Bob Hughes Creek in Northwestern Colorado, from the Paleoindian to Protohistoric Eras

5MF1915 is a large, stratified site situated south of Maybell, Colorado along Bob Hughes Creek at the transition from a restricted canyon to open steppe. This canyon is a natural travel route connecting the White River valley to the south and the Yampa River valley to the north. The unique topographic setting of the site proved an attractive stopping point for prehistoric peoples from as early as the Paleoindian Era to as late as the Protohistoric Era. Deposition at this site is non-continuous, providing a complex mosaic of stratigraphy and occupations. Excavations in 2005 and 2006 produced what are essentially a series of small snap-shots of multiple occupations that spanned over 8,000 years. This presentation will discuss the results of these investigations and touch on some of the current research developing from them.

Jinks-Fredrick, Zech, Barbara Webster, Anna Nicol, Travis Hansen, Skye Cooley, Bonnie Pitblado, Carol Dehler

Poster: 5GN1 Artifact Density Mapping Project



We report on a research project that involved mapping chipped stone artifact density in a test area of the well known Gunnison Basin quartzite quarry site 5GN1, and exploring the correlation between artifact density and exposures of naturally occurring quartzite at the locality. We were particularly interested in how prehistoric hunter-gatherers of the region accessed and utilized 5GN1 geological formations that include outcrops, faults, and gravel deposits.

To carry out our research, we began with a 1:12,000 scale topographic map of 5GN1 and superimposed over it a grid system of 825 100-m² squares (although it was not possible to transect 100% of these because a few were underwater or on a steep cliff face). Two teams of two people each transected the 100m² squares that could be accessed, and each team estimated the number of surface artifacts observed. We then labeled the squares with their corresponding artifact counts and colored them according to artifact density.

This method of expressing artifact density revealed clear patterns in quartzite procurement at 5GN1. When we overlaid our artifact density map upon a detailed geologic map produced by another Utah State University research team, the locations of high artifact density suggest that prehistoric cultures strongly favored fault-related silicified Junction Creek sandstone formation for tool stone procurement over other expressions of quartzite at 5GN1.

Jones, Kevin and Andrew T. Yentsch

Paper: The Politics of Preservation at the Prison Site

The Prison Site (42 SL 186) is a large archaic habitation and food-processing site in the Salt Lake Valley that was subject to testing in 2006 and 2007. Pithouse and roasting pit features were dated at between 2,500 and 3,000 years ago, and FTIR and phytolith analyses of the early features revealed evidence of the use of maize. Interest by developers threatened the protected status of the site, and legislation passed that would allow construction of a light rail station and associated developments on the site. Outcry by archaeologists, open-space organizations, river enthusiasts, and Utah Tribes reached the Utah governor's office, and after many meetings spanning two governors, the site was protected with a conservation easement. The politics and power plays were incredible, and the fact that the site has been protected is a major triumph for all involved.

Kennedy, John

Poster: Metal Projectile Point Survey of the Interior West: Preliminary Results and Directions for Future Research

Metal projectile points of the Protohistoric and early Historic periods are a somewhat rare, yet ubiquitous artifact type that has received little attention regarding synthetic research. Their roughly 300 years of use across the interior west coincided with perhaps the most profound and rapid culture changes experienced by native groups of North America during the entirety of North American prehistory and history. A survey of 14 states across the interior west is currently underway to gather data on all available metal projectile points. Preliminary results from this ongoing data collection effort are presented and goals for future research are introduced.



 Knapp, Ashleigh J. and Jason M. LaBelle

Poster: The Red Rock Road: Protohistoric Archaeology along the Northern Colorado Front Range

The 1970's discovery of the Lykins Valley site initiated interest in developing an archaeological understanding of the Contact Era (~ A.D. 1750 to 1870) within the northern Colorado Front Range. Protohistoric sites containing wikipu and Euroamerican trade goods, including glass beads, are located in frequency, which indicate extensive use of the landscape. Change in the material culture of local groups is reflected in rock art panels and is evident ethnographic accounts. Recent findings have renewed interest in Protohistoric studies in the area by Colorado State University researchers. Current research aims to link the archaeological and ethnographic records of northern Colorado during the Protohistoric period in order to elucidate tribal affiliations and land use practices.

 Kopp, Derinna V. and Ronald J. Rood

Paper: Human Remains From Deadman Cave, Utah: AMS Dates and a Re-Analysis

Deadman Cave (42SL001) is on the south shore of the Great Salt Lake near the modern town of Magna, Utah. This site was the subject of several seasons of excavation by the University of Utah under the direction of Elmer Smith in the late 1930s and early 1940s. Smith identified six stratigraphic levels within the cave and recovered hundreds of artifacts. He also excavated seven human burials which have been at the Utah Museum of Natural History since being excavated. Without the benefit of radiocarbon dating, Smith suggested the earliest human occupation in Deadman Cave to be 7000 years ago "or slightly more" and as it turns out, he was correct. In a cooperative effort with the Utah Museum of Natural History, we've been able to directly date several of these skeletons (n=6) and begin to re-analyze the entire assemblage of human remains from Deadman Cave. AMS dates place five of the six burials documented by Smith in the Early Archaic. Our preliminary re-analysis of the human remains suggests there are many more individuals represented in the assemblage than indicated by Smith or by physical anthropologist Buettner-Janush who examined the assemblage in 1954.

 Kornfeld, Marcel, Price Heiner, Kayla Bradshaw, Allison Hadinga, Kyle Joyner, Alicia Sorenson, Dwight Hicks, and Mary Lou Larson

Paper: Slicing the Dirt: Anatomy of a Bighorn Rockshelter

Rockshelters like all archeological sites are geologic deposits encasing anthropogenic materials. At Two Moon Shelter in the Bighorn Range of the Central Rocky Mountains, the geological sediment consists of fines that include loess, as well as cobbles and boulders, the latter two referred to as ebbulis. The anthropogenic material consists mainly of chipped stone with minor quantities of bone. The purpose of this exercise is to examine the distribution



and position of anthropogenic and geologic material through the sediment. To this end backplots, artifact frequencies, eboulis, and 2.5 cm thick thin sections of the deposit are analyzed.

LaCasse, Jessica and Greg Pierce

Paper: Spatial Considerations for Recent Research at Fort Garland

During the Civil War era of the nineteenth century the United States Army constructed numerous military forts in the American West including Fort Garland (established 1867) in the San Luis Valley of southern Colorado. While the maps and plans for the majority of western forts were designed according to eastern United States conventions, the forts were constructed using local materials, frequently with labor from tradesmen and soldiers from the area familiar with regional building traditions. These influences caused for the adoption of indigenous building methods by the US Army. Previous research in this area has focused on the manner in which American westward expansion has influenced native cultures in the region. Our work at Fort Garland suggests that the cultural influences brought about by interaction between westward expanding Americans and indigenous groups in the west was not mono-directional, but rather a two-way exchange of cultural ideals which resulted in changes to the base ideologies of all groups involved. Initial field work at Fort Garland focused on determining the physical boundaries of the fort's stables and uncovered substantial spatial discrepancies between the stables as they are shown in the fort plans and that which exists in the archaeological record. The root of these inconsistencies, we suggest, is imbedded in the disconnect between indigenous southwestern and traditional eastern United States ideologies and cultural traditions. This paper is focused on an examination of changes and continuities in native and American building traditions during the contact period as expressed spatially through mapping, site selection, site organization, and construction methods and styles. By comparing the historic plans for Fort Garland, those of other forts, historic buildings in the region, and our field data, this work aims to present a picture of how native cultural traditions were incorporated into the eastern standard.

Lee, Craig M.

Paper: From Denali to Yellowstone, Results of Ongoing Ice Patch Investigations in Western North America

In the last several decades archaeological and paleontological materials have been discovered in association with once permanent melting snow and ice in northwestern North America and elsewhere around the world. The appearance of these unique cultural and scientific resources appears to coincide with regional impacts brought about by global climate change. The discoveries offer important new insights into alpine paleoecology and the use of high elevation environments by humans. This presentation will convey some of the discoveries from 2009 fieldwork in Denali National Park, Alaska and in the Greater Yellowstone region. Highlights will include the results of historical imagery analysis and the release of a website (instaar.colorado.edu/ice_archaeology) devoted to ice patch archaeology.



 Lee, Craig M.

Paper: Temporal and Spatial Trends in the Use of Obsidian in Northwest Colorado and Vicinity

Geochemically sourced obsidian artifacts reveal how prehistoric people moved and interacted on the landscape. Nine of the archeological sites investigated during the WIC and REX pipeline projects yielded obsidian artifacts. Obsidian assemblage size varied from one (e.g., 48SW15758) to nearly 1000 artifacts (5MF5827). Nine geochemically distinct obsidians were identified in the assemblages, including four Idaho sources (Owyhee, Big Southern Butte, Bear Gulch, Malad), two Wyoming sources (Teton Pass, Obsidian Cliff), two New Mexico sources (Cerro del Medio, Polvadera), and one Arizona source (Government Mountain). Obsidian hydration was conducted on several obsidian artifacts to bolster a regional database and to provide an independent assessment for the age of certain occupations. This presentation will discuss temporal and spatial trends in obsidian use at the project sites and compare the observations with extant data from previous projects in the area.

 Lee, Jennifer Borresen

Paper: Preliminary Results of the Faunal Analysis of the WIC and REX Pipeline Projects in Northwest Colorado

Several of the archaeological sites excavated during the WIC and REX pipeline projects in Northwest Colorado yielded significant faunal assemblages. Faunal remains were recovered from components dating from ca. 8000 cal. BP through historic times. Bison and medium artiodactyls (deer/pronghorn) are the most prevalent large mammals, while leporids (jackrabbit/cottontail) dominate the small mammal remains. Analysis of the remains is on-going but will provide useful information about regional subsistence trends in Northwest Colorado during the prehistoric period, including temporal and/or geographic differences in resource utilization. This paper presents a preliminary discussion of the fauna and highlights some of the more unique discoveries, including the remains of beaver, bobcat, and elk.

 Madsen, David B., David Rhode, Lisbeth A. Louderback, and Michael D. Metcalf

Paper: Packrats, Pollen and Pine II: The Flat Tops Pollen Records and Implications for Regional Millennial-Scale Climate Cycles

A thorough review of paleoenvironmental records for the Central Rockies region suggests that while evidence of Holocene millennial- to centennial-scale climate cycles is pervasive, the records often appear inconsistent and contradictory. We try to resolve many of these apparent inconsistencies by combining a chronology for North America as a whole with a local high altitude pollen record and with plant macrofossil records from woodrat middens. This suggests the apparent inconsistencies can be attributed to poor dating controls, but more importantly, to the differential local impacts of climate shifts (particularly changes in the extent of the summer



monsoon). These differentially effective shorter-term cycles are superimposed on longer-term differential changes, such as migrations of woodland species, making it necessary to construct specific local sequences in order to best provide a paleoenvironmental context for local archaeological interpretations.

Maggard, Annie E. and Jason M. LaBelle

Poster: Investigating the High Country: A GIS-Based Synthesis of Colorado Archaeology Above 3,000 Meters

Over 4,600 prehistoric and historic archaeological sites recorded in Colorado are located above 3,000 meters. A GIS-based synthesis of this high-elevation dataset aids in the visualization of site placement in relation to elevation. Further spatial analyses explore site location within available acreage above 3,000 meters, as well as site density according to temporal component. The degree to which these high-elevation sites have been researched and documented, including the proportion that have been dated, excavated or otherwise intensively investigated, is also considered. Results of this study uncover trends in both site location and extent of coverage by archaeologists, and indicate high-altitude areas of significant site probability, which will inform and direct further research.

Markuson, Michelle

Symposium Poster: Institutional-Style Homes vs. Homes that have Undergone Cultural Change: Residential Responses

Culture change is generally thought of as a shift in a specific culture. In American nursing homes, the term culture change is a specific movement that is reforming nursing homes across the country. The goal is to change a nursing home from the typical sterile, institutional venue to a home that an elderly person could enjoy living in without having to give up their freedom. In the past, residents in nursing homes had set schedules for eating, sleeping, bathroom use, and activities. The set schedules made work easier for nurses, nursing aides, and therapists. With culture change incorporated into a nursing home, the residents will have the option of scheduling flexibility. The change affects the residents greatly. This poster explores the difference in resident response to a institutional-style home and one that has undergone culture change.

Matthews, Bill

Paper: High Altitude Cultural Resource Survey of the Cloud Peak Wilderness of the Bighorn National Forest, Wyoming: An Update

Field surveys were conducted over three field seasons (2005, 2006 & 2008) in selected areas of the Cloud Peak Wilderness of the Bighorn National Forest. The inventory efforts have focused on high altitude areas associated with Mistymoon Lake (2005), Lake Marion and Florence Lake (2006) and Lake Helen (2008) along with the trails



and land formations associated with these bodies of water. Thirty sites were recorded and evaluated for National Register eligibility. These cultural resources were located from 10,000 feet to 11,000 feet in elevation above sea level. Driven by basic research into questions of Native American use of the high elevation regions of the Big Horns Mountains, these surveys represent the most complete inventory of the previously uninvestigated alpine and sub-alpine environments.

Temporal/cultural artifacts represent periods from Contact to Paleo-Indian with, the predominate lithic tools represent the Middle Archaic occupation. Obsidian artifacts have been sourced to the Obsidian Cliffs quarry area of Yellowstone National Park and date to from 1118 BP to 3389 BP. Highlights of the first three field seasons will be discussed along with a Power Point presentation. The need for syntheses, along with future research into the visually powerful and culturally rich Cloud Peak Wilderness is noted.

McDonald, Kae

Paper: The Great Divide Project: A Look At Homesteading Efforts in Northwestern Colorado in the Early 20th Century

The Great Divide Homestead Colony Number One was the last major homestead effort northwest of Craig (Athearn 1982:105). The town of Great Divide was established in 1916 and by 1917 many families were working towards establishing rights to their property as required under the Homestead Act. The homesteaders scratched out a living from dryland farming until the drought-filled days of the 1930s, after which many sold their properties back to the government under the Bankhead-Jones Land Act. The Great Divide project combined oral history and Class III inventory to investigate what remains of at least four homestead properties that are located on BLM, Little Snake Field Office administered-property acquired under the Bankhead-Jones Land Act. The Class III inventory yielded four new historic sites that may be related to homesteading efforts spearheaded by the Great Divide Colony, and four previously recorded sites related to these homesteading efforts were revisited. This paper explores the relationship of these sites to the homesteading effort, and how the physical remains of these sites compare to others in a local and regional setting.

McFaul, Michael, and Michael D. Metcalf

Paper: Lessons from the Dirt Revisited I: A Sequence of Nine Holocene Sediment Events Recognized Along the WIC-REX Pipeline Right-of-Way, Northwestern Colorado-Southwestern Wyoming

Based on examination of profiles in 27 archaeological sites the authors presented in 2005 a model of Holocene sediment events. This model described nine "sediment events" and attempted to correlate and evaluate the effects of these events with the archaeological record. During 2005-2006 subsequent investigations along the WIC and REX right-of-ways in much of the same corridor were designed to refine sediment sequences and more precisely date key events. WIC/REX investigations substantially increased the number of described profiles and dating of stratigraphic associations. The initial sediment model stood up well in general sequence, but benefits from tighter dating control and added detail.



 McMillian, Summer Moore

Paper: Intermountain Pottery from the Long Knife Site, Moffat County, Colorado

The use of pottery among hunter-gatherer groups, in comparison to its use by semi-sedentary farmers, remains a poorly understood aspect of the prehistory of Colorado. This paper describes an assemblage of Intermountain Ware from the Long Knife site (5MF5827), a presumed Shoshone large mammal-processing site in northwestern Colorado. The collection, which is associated with the late Protohistoric and early Historic eras, consists of 564 pieces of pottery and fragments of fired clay. Multiple vessels are represented. By comparing results of the pottery analysis with information obtained through excavation, this paper addresses several aspects of pottery use at the site, including production, function, and social importance.

 Meldrum, Greg

Paper: The Funky Report

An opalide, also known informally by excavators, as "funky mineral", has been recovered on top of Tenderfoot Mountain at the Mountaineer archaeological site. The uses and occurrences of the mineral are unknown and little research has been done to date. The localities of the mineral are relatively rare, with few known sources in the Gunnison Valley. The relatively unknown and poorly researched "funky" mineral has had archaeologists asking questions since the discovery of the mineral at the Mountaineer site in 2001. The mineral has only been found in association with the Folsom occupation, and no use (or transport) of the mineral has been found in relation to the Archaic or later occupations represented at the Mountaineer site. The source of the mineral is being debated, and the importance of each locality lies in the extent to which one must travel to obtain such a mineral and could show how important such a mineral is to a culture, for whatever reason it is being used for. The "funky" mineral has been proposed as a source of pigment but the verdict is still out with further experiments to come.

 Meldrum, Greg

Symposium Poster: Cross-Cultural Analysis of Ice Fishing

The idea of the project was to interview a handful of "squatters," or ice fishermen. Interview questions focused on why these people started ice fishing, how long they had been ice fishing, how far they traveled to fish (at Blue Mesa Reservoir), if they left any material on the ice, and what they did with the fish. I also asked if they could sketch an average ice fishing site to see what activities happen on the ice, such as how many holes they use and if they leave material behind (trash pile). The information was compiled to show how methods and practices used by individuals from diverse social (regional) backgrounds are similar or differ from each other. I will also use the information obtained from interviews to do a cross-cultural analysis, or to compare spatial distributions of activity



areas using Binford's processual archaeology approach, in which contemporary material remains are compared to archaeological patterning.

Meltzer, David J.

Paper: The Environment of the Folsom Occupation in the Gunnison Basin

The presence of Folsom sites in multiple localities in the Gunnison Basin, and especially the occurrence at the Mountaineer site of what appears to be evidence for several structures suggestive of a relatively long-term, possibly winter encampment (e.g. Stiger 2006), beg the questions of how the climate and environment of the Younger Dryas Chronozone (YDC) played out in this region, and what challenges/constraints this would have posed for hunter-gatherers. Analysis of extant pollen records (available in the North American Pollen Database), coupled with data from recent lake coring and cave excavations (analysis of which is still on-going) indicate that Younger Dryas conditions were not as severe here as elsewhere, and that most of the significant ecological changes occurred prior to the onset of the YDC, and that during this temporal span conditions were relatively stable.

Metcalf, Michael D., and Michael L. McFaul

Paper: Lessons from the Dirt Revisited II: Cultural Stratigraphy Along the Piceance-REX Pipeline Right-of-Way, Northwestern Colorado-Southwestern Wyoming

The cultural stratigraphy of the northwestern Colorado, South-central Wyoming area is interpreted against the characteristics of the sediments enclosing cultural deposits. In 2005 the authors presented an overview of cultural changes evaluated against a backdrop of nine cycles of sediment deposition and erosion, largely based on data collected during the Uinta Basin Lateral pipeline project. New stratigraphic data was collected from the Piceance and REX pipeline projects for both sedimentation and the sequence of human occupations. Particular emphasis was given to obtaining good radiocarbon ages for key events. Together with the pollen and packrat midden studies conducted for the projects, this new data provides a much firmer basis for interpreting changes in human use of the landscape through the Holocene.

Morgan, Brooke M.

Paper: Funky Mineral in Folsom Context: Opalide Distribution at the Mountaineer Site, Block C Locality

Angular pieces of opalide are found in association with Folsom artifacts and artificial features at the Mountaineer site in Gunnison, Colorado. Presently, natural deposits have not been located onsite, though they may be prevalent throughout the Gunnison Basin. Comparison of opalide distribution with a potential structure and hearth area uncovered during the 2009 field season in Block C is fundamental for investigating the role this mineral played in Folsom technological organization, since its function remains unknown at this time. Exploring physical properties of the opalide will address possible methods of natural and cultural modification.



 Morris, Robyn Watkins

Paper: Lithic Procurement Areas in Northwestern Colorado

The diverse toolstone available in northwestern Colorado (north of the Yampa River and west of the Zirkel mountain range) is poorly known outside the area. Material such as Bridger or "tiger" chert, petrified wood, ostromedon replacement chert, Morgan Madison chert, and chalcedony are in the area. Recent finds such as the Mahaffey Cache in Boulder demonstrate that the material may have been carried far beyond northwestern Colorado. This paper aims to review known material types known in this area and where there are recorded procurement sites.

 Morrison, Edward R.

Paper: The Application of Panperythorio Images Generated by a Scanning Electron Microscope

The Scanning Electron Microscope can record images at magnifications far superior to a standard light microscope. But by zooming in so far, the context of what one is looking at quickly evaporates. It is the purpose of this presentation to show that context can be maintained in highly magnified images by creating a mosaic of multiple images. There is negligible error in the creation of such a mosaic. In order to show this, the researcher created panperythorio mosaics, a ring of pictures around the edge of an artifact, of two scrapers and quantified the displacement from the first image to the last.

 Morrison, Edward R.

Symposium Poster: Seeing and Speaking about Color

John Locke first proposed an idea called the "Inverted Spectrum Argument" in which he questioned whether it was possible that one person could see colors differently from another person. For instance, could there be an "inverted qualia" (red to green, blue to orange, etc)? It is impossible to know for sure, however, in this research project I have found it is possible to evaluate the different ways individuals see contrasts in color. Contradicting the Sapir-Whorf Hypothesis, people can think of color differently than the structure provided by their language. That is, the person thinks differently than the language they use works. In this instance, the person is "less picky" than the language, and can use fewer categories than the language. This implies that language is, in a way, 'smarter' than the user and provides a precision that is not necessarily used by a given speaker.



 Mueller, Jenn

Paper: The Long Knife (5MF5827): A Shoshone Occupation on the Fringe

The Long Knife Site (5MF5827) is a shallow archaeological site with evidence for two Protohistoric occupations, one of which is a Shoshonean occupation. This Shoshonean occupation represents one of the southernmost Shoshonean sites. The Shoshonean occupation is the primary occupation, occurring between 490-320 cal years B.P. It is a winter camp, and feature clusters indicate the presence of household or hearth groups and a population of 12 to 24 individuals. Because of its age and cultural affiliation, the large and diverse assemblage at the Long Knife site offers a rare opportunity to address Ute/Shoshonean border politics, Shoshonean group dynamics and resource use for the initial occupation. The second occupation indicates a series of short term camping events occurring between 300-150 years cal B.P., which offers the chance to consider how cultural knowledge and resource use may structure spatial organization and site reoccupation.

 Mullen, Patrick Orion

Paper: Simulating Prey Choices as a Function of Empirically-Derived Demography

To better understand changes in diet breadth and its relationships with demography, I produced a model that relates these two variables. I began with empirically-derived paleodemographic data corrected for taphonomic bias from the Wyoming counties which comprise the Bighorn Basin. I then built a prey choice model containing relevant mammalian species of the region. Finally, I simulated forager prey-choices at broad intervals over the time span covered by the paleodemographic record. This technique produced testable hypotheses of diet breadth for the area including relative proportions of species in diet, dietary inclusion and exclusion, and predicted dates of change. This model could be applied to other parts of the world, but my future work will focus on refining and testing these predictions using faunal data from excavated archaeological sites.

 Nash, Robert

Paper: The Role of Maize in Low-Level Food Production Economies of Northeastern Utah

This research investigates low-level food production north of the Uinta Mountains of northeastern Utah during the Fremont period. The region is at the northern fringe of agricultural expansion, providing a unique opportunity to gain insights into the character of low-level food production economies. I argue that maize was used for tactical purposes in order to maintain foraging efficiency and sustain hunter-gatherer economy, and that agriculture maintained foraging efficiency by prolonging access to high-ranked resources. Stored cultigens along the northern slope of the Uinta Mountains may have allowed hunter-gatherers more time to spend in the pursuit of high-ranked resources.



 Newton, Cody and Ryan Byerly

Poster: *Bison Seasonality and Herd Structure at the Sepy-Cornwell Site (48CR4001), Great Divide Basin, Wyoming*

The Espy-Cornwell Site (48CR4001) is a multicomponent, multifunction site that contains a bison bonebed representing a single kill-butchery episode. Excavated between 1984 and 1988, the bone assemblage contains at least six animals likely killed at this location in an arroyo trap around 1280 B.P. The current analysis is undertaken to better ascertain the season of death and herd structure in order to develop a better understanding of bison procurement during the Late Prehistoric Period in the marginal environment of the Great Divide Basin.

 Parsons, Erin E. and Vlisha Stanerson

Poster: *Carved in Bone: Experiments in Turkey Bone Bead Production*

This poster presentation examines the best methods for creating turkey-bone beads under the constraints faced by past populations in Colorado and the greater southwest. The authors examine the effects of using dry bone versus wet bone, the fracture rate of bones during the process of cutting, grinding and incision, as well as the amount of bone discarded. Though the type of flakes and sandstone for grinding are kept constant, further examination is given to the state of wear evident on the flakes before and after the bone-bead creation process. This experiment allows a greater understanding of both the environmental and technological constraints faced by past populations, and aids in future research into the experimentation of bead-making processes, as well as provides greater insights into the amount of time and effort involved in the activities of past populations.

 Patterson, Carol

Paper: *Cross Mountain Project*

This presentation has two components, first, the Cross Mountain Project assessment grant, administered by the Vermillion Chapter of CAS. The project was a training program to record and re-evaluate rock art panels at Cross Mountain located 43 miles west of Craig, Colorado.

They form a homogeneous style called "Fremont" of the Formative era. Dr. Alan Watchman and Dr. Carol Patterson conducted the field school and wrote the report for the project.

Second, consultation with the Northern Ute added interpretive information offered by Clifford Duncan, Ute Indian Spiritual Leader. Clifford spent several nights camping out at the site, to understand the role the landscape, springs, plants and game animals might have played in the site's significance and why there are so many petroglyphs yet there are no habitation sites. Although it is a Fremont site, this presentation offers his interpretation from a traditional Ute perspective.



 Pitblado, Bonnie, and Carol Dehler

Paper: New Quartzite Sourcing Studies, Gunnison Basin, Colorado

In the Gunnison Basin, Southwest Colorado, archaeological assemblages are often dominated by chipped stone tools and debitage made of quartzite. However, no method exists for geochemically fingerprinting either the quartzite artifacts or their potential source areas on the landscape.

In a 2007 pilot study, we sampled 20 Gunnison Basin artifacts, bedrock samples, and surficial deposits and evaluated various geochemical techniques for their potential to discriminate among samples from different sources. AD-ICP-MS and its less-invasive but lower-resolution counterpart LA-ICP-MS both showed strong potential in this regard, whereas other techniques (e.g., XRF) did not. Clearly, however, our preliminary results must be evaluated with a larger sample size.

Summer 2009 field work in the Gunnison Basin therefore focused on identifying and collecting as many samples from as many quartzite sources as possible. In the end, we collected over 400 individual specimens from over 25 distinct quartzite sources, some prehistorically quarried and some not. ICP-MS analyses of the samples are underway, as are the petrographic assessments that will provide the physical context for our geochemical results.

Our presentation reviews the results of our pilot study; overviews results-to-date of comparisons of LA- vs. AD-ICP-MS analysis of quartzite; and discusses the methods used to collect the new samples and how their analysis is proceeding. We conclude with implications of the effort to geochemically fingerprint quartzite for Gunnison Basin archaeology and archaeological and geologic undertakings elsewhere.

 Pool, Kelly J.

Paper: Red Army Rockshelter (5RT345): Stratified Occupation from the Archaic Pioneer Period through the Protohistoric Era in Northwestern Colorado

Excavations in the Red Army Rockshelter during 1994 produced diagnostic artifacts and seven radiocarbon ages ranging from 7300 to 1080 BP, demonstrating continuous use from the Archaic Pioneer Period through the Protohistoric Era. The rockshelter, near Steamboat Springs, Colorado, is named for the line of red shield figures along the back wall. A Pioneer Archaic house excavated into the floor, a Pioneer Archaic human burial, a Transitional Archaic house, a Terminal Archaic activity area with a stone pipe/tube and red ochre-stained artifacts, evidence of Formative or Protohistoric trade based on New Mexico and Idaho obsidians and glass beads, and Uncompahgre brownware were found. Reasons for houses built inside a rockshelter during the Archaic Pioneer and Transitional periods are explored as well as comparison to similar sites.



 Pool, Kelly J.

Paper: Out of the Weather, but Not Out of Food: Archaic Era Shelter and Storage along the Piceance Pipeline Route

Ten sites along two parallel pipelines, the UBL (1992) and Piceance (2005) routes through northwest Colorado and southwest Wyoming, contained evidence of at least 35 large circular basin features. These features all dated to the Archaic Era, ranging in age from 7285 to 2950 RCYBP. Functions represented by these large basins probably included domiciles, covered outdoor work areas, storage or cache locations, or some combination thereof. Evidence for function based on interior feature type, interior feature placement, and artifact type will be examined. In addition, I will explore whether changes in shelter size and use correlate with chronological and paleoenvironmental periods.

 Puseman, Kathryn

Paper: Choose Your Wood Wisely: Bigger Isn't Always Better

Selection of charcoal samples for radiocarbon dating often is based on the size of the charcoal fragment, rather than on the identification of the charcoal fragment. A better scenario would be to have charcoal identified, and the taxa with the shortest life span selected for dating. A radiocarbon dating study revealed that dating of wood from the inner portion of a tree resulted in an older date than wood from the outer portion of the tree. Charcoal assemblages in the Rocky Mountains often have a high percentage of conifers, which tend to have relatively long life spans, and smaller percentages of taxa that have shorter life spans. Identification of charcoal from five sites in the Great Sand Dunes National Park and Preserve in south-central Colorado demonstrate how conifers can dominate a charcoal assemblage, although a variety of hardwood charcoal types also were present.

 Ramirez, Carissa, Megan Finch, Jason M. LaBelle, and Courtney Carlson

Poster: Black Shale Arroyo: Early Ceramic Occupation Along the Northern Colorado Hogbacks

Black Shale Arroyo (5LR11718) is a large prehistoric camp located along the hogbacks of northern Larimer County, Colorado. The site was initially recorded by Colorado State University during their 2006 inventory of the Soapstone Prairie Natural Area and was more intensively studied by the 2009 CSU field school. BSA has been severely eroded, such that a 25 foot deep arroyo has downcut through the center of the site and eolian erosion has winnowed away much of the remaining surface, revealing dense concentrations of artifacts and tools. The site contains the remains of at least 17 hearths exposed on the surface and surrounded by a moderately dense lithic scatter containing projectile points, preforms, bifaces, and flakes primarily dating to the Early Ceramic period. Current investigations centers around the spatial distribution of tools and flakes in relation to the numerous cobble and charcoal filled hearths. The site continues to yield important information on this portion of the Late Holocene



record and makes for an useful comparison to the nearby Lindenmeier Folsom site, even though both sites have been periodically collected by amateurs beginning in the 1920s.

Reed, Alan

Paper: Modeling Annual rounds in Northwestern Colorado

An attempt is made to model the annual range of the inhabitants of an Archaic basin house presumed to represent a winter occupation in central Moffat County, Colorado. Ethnographic research on pedestrian hunter-gatherers has established the likely area encompassed by the annual range, but the configuration surely reflected the distribution of resources, as well as topographic features that affected transportation costs. Efforts to determine the most likely configuration of the annual range considered a variety of factors, including the timing of food resource maturation, foraging efficiency, and transportation costs. The resulting model is anchored by the winter house in the lower valleys. Early spring was probably spent in the lower valleys, but peoples probably followed migratory game to the 7,000-8,700-foot summer range of local deer. From mid-elevation field camps, people exploited both the lower and higher elevations. Storable foods were probably periodically moved to wintering areas during the warm seasons.

Rhode, David, Lisbeth A. Louderback, David V. Madsen, and Michael D. Metcalf

Paper: Packrats, Pollen and Pine I: Holocene Vegetation History in Northwest Colorado

Paleoenvironmental analyses using packrat middens and pollen-bearing sediments have assisted in establishing a context for understanding regional archaeological patterns exposed along the WIC-REX gas lines. We examined several dozen packrat middens, dating from ca. 5000 BP through historic times. Sediment cores from the White River Plateau (Flat Tops) provide a pollen record of changing high-altitude vegetation spanning the Holocene. This paper presents results of these analyses and their implications for Holocene vegetation change, including the northward spread of Colorado pinyon pine to Wyoming.

Robinette, Curran

Symposium Poster: 'Green Ranching' in the Gunnison Watershed

This poster will provide a detailed look at 'green ranching' in the Gunnison watershed. My research focuses on the Gate View Ranch in Powderhorn, Colorado, and the owner's efforts there to go "off the grid." The poster provides not only ethnographic data about this particular ranch but also provides a look into what this ranch's efforts mean on a wider scale. Hopefully this insight into green ranching can be used as a guide for future ranchers in the area. The Gate View Ranch provides important insight into an alternative style of ranching.



 Rood, Ronald J. and Derinna V. Kopp

Poster: They Were Executed on Sunday Morning October 2nd, 1853: The Archaeology of a Mass Grave and One Event of the Walker War, Utah Territory

During the construction of a new home in Nephi, Utah, human remains were uncovered. The landowner and construction supervisor made a decision not to further disturb the remains and contacted law enforcement and subsequently the Antiquities Section. What they uncovered was the archaeological consequence of an event known as "Nephi's Bloody Sunday" where heightened fear, anger, revenge and a summer of elevated violence and guerilla warfare between Mormon settlers and Native Americans led to the execution style killings of eight Native American men and boys in what the official record termed a "skirmish." Violent tit-for-tat killings between Mormons and Native Americans during the summer and fall of 1853 are referred to as the "Walker War." In this case, history, archaeology and forensic anthropology come together to paint a clearer and more accurate picture of what happened the morning of October 2nd, 1853.

 Rood, Ronald J., Derinna V. Kopp, Jack Pfertsh, Matthew Landt, Rand Greubel and Andrew Yentsch

Poster: A Unique Archaic Aged Infant Burial from Rich County, Utah

During an archaeological survey for a pipeline project in Utah, archaeologists from Alpine Archaeological Consultants found what they thought was a human burial eroding from a dry rock shelter. Since the site was on private land and since the final route of the pipeline had not been established, and since the burial was in danger of erosion, the Antiquities Section excavated the human remains. It turned out to be the burial of an infant, 2 - 3 months in age buried in a small basin-shaped pit within the rock shelter. Associated artifacts include a feather placed on the cranium and two wooden billet type artifacts of unknown function. Preservation of the human remains was excellent and included desiccated skin and hair, the feather and the two wooden artifacts. A radiocarbon date on human tissue and hair produced a radiocarbon date of 4800±40 placing this burial within the Archaic time period.

 Sikkink, Lynn

Paper: Ethnography and Service Learning in San Luis, Colorado

This paper reflects upon and explores the nature of collaborative fieldwork, both as an undertaking experienced by a group of field school students and the instructor, as well as the collaboration that emerges from working with San Luis residents on projects they choose and value. Ethnographic research questions must be grounded in a firm understanding of the culture and history of the area as well as residents' concerns. The pattern of water distribution, use, and associated values represented by the continued operation of the *acequia* system in this small community can serve as a model for how anthropology students can be incorporated into the community. Using perspectives from the instructor (Sikkink) and drawing on commentary and contributions from student members of



the field school, this presentation considers our current knowledge about and understanding of San Luis, and how we might take our preliminary observations into fieldwork directions that would be useful to the residents with whom we work.

Simms, Steven. R, Patricia M. Lambert, Bonnie L. Pitblado

Poster: Masters Degree Program in Cultural Resource Management Archaeology at Utah State University

A survey of archaeologists in 2006 by the American Cultural Resources Association found that 87.2 percent favor the establishment of graduate programs that serve the Cultural Resource Management industry. Utah State University is developing such a Master's Degree program for the Great Basin and Intermountain West. Basic skills identified in surveys of CRM archaeologists as important to successful employment are integrated with research, and with internships at private companies and government agencies. The program prepares students for career paths beyond that of an archaeological technician.

Slaughter, Stephanie

Paper: 5MF6255: An Early Basin House Occupation in the Yampa Valley

Site 5MF6255 is a prehistoric basin house site located near the confluence of the Yampa River and Spring Creek in northwestern Colorado. Three basin houses were occupied over a period of approximately 400 years during the Pioneer Period of the Archaic Era. These are the earliest known basin houses in the Yampa Valley. Materials recovered at the site provide information about mobility strategies, subsistence, and lithic technology. The Pioneer Period is defined as an Archaic adaptation with a few remnants of Paleoindian lifeways. At 5MF6255, this is represented by a broad spectrum subsistence pattern usually associated with Archaic lifestyles and with lithic raw material use patterns more consistent with previous Paleoindian adaptations.

Stiger, Mark

Paper: Folsom Structures and Assemblages at the Mountaineer Site, Gunnison, Colorado

Excavations at the Mountaineer site have revealed four substantial structures containing Folsom Paleoindian artifact assemblages. The seasons of occupation for all structures appear to be winter, and evidence for and against their contemporaneity is discussed. Assemblage differences are seen in tool content and raw material selection. Assemblage similarities are seen in breakage pattern and spatial distributions. Structure and assemblage differences and similarities are described and explanations are explored.



 Tanner, Russell L.

Paper: *Mr. Granger's Station: Studies at a Way-Station on the Overland Trail in Wyoming*

This research traces the evolution of a historic building on the Overland trail from its' construction, as an Overland Stagecoach Company station in 1862, for over seventy years until it was given to the state of Wyoming as an historical landmark. When gold fields flourished briefly in Wyoming and Montana, the Old South Bend Station became a transfer point for goods and services. The extensively battered archaeological component attests to the rough and tumble dynamics of freighting industrial equipment to, and raw materials from communities in the hinterlands after the Transcontinental Railroad joined the continent. Glimpses of the Gilded Age are seen in both the archaeological record and the surprisingly extensive historical documentation of the old way-station as it served as a store and residence in later years.

 Troyer, Michael and Christopher Reed

Poster: 5LR110: A Multi-Component, High-Intensity Occupation Site in Northern Larimer County, Colorado

5LR110 is a multi-component site in Northern Larimer county, Colorado. Initial analysis suggests a Native American occupation dating from the Early Archaic to the late prehistoric, and shepherd and ranching components dating to early 20th century. The site was first discovered in the 1970s by archaeologists with the CSU Boxelder Project and further investigated by the 2009 CSU Archaeological Field School. Mapping, surface collecting and shovel tests reveal an extensive site with buried components. Cultural material was recovered in 12 of the 13 shovel tests as well as in cutbanks in several areas of the site. Furthermore, 5 large stone circles were mapped using drawing grids and total stations.

Much of the site centers around a spring near the mouth of a high canyon. An erosional channel cuts through the center of the site and revealed two distinct, high-intensity occupation levels. As well, two hearth features were revealed in the wall of the arroyo, one of which was also directly beneath the historic component. Both features were profiled and charcoal samples were recovered for dating. The apparent continuous, patterned use of the area may shed a great deal of insight into settlement structure and land use in this unique area of the Colorado foothills.

 Varney, R.A.

Paper: Update on the State of the Art of Microscopic Charcoal AMS Dating

Provides an update on the applications and applicability of AMS radiocarbon dating microscopic charcoal. Several comparison tests have been conducted dating both microscopic charcoal and traditional-sized charcoal from the same sample, returning nearly identical ages. Smaller quantities of sediment have been processed to recover



microscopic charcoal, allowing higher resolution within complex contexts. The process is ready for primetime. Less obvious applications for microcharcoal dating are also discussed.

Wolfe, David C., and Michael A. Frankus

Poster: Obsidian Sourcing by Current Archaeological Research, Inc.

In the past 10+ years Current Archaeological Research, Inc. has sourced 408 pieces of obsidian. By examining the results, patterns can be determined. In 1997 Thompson, Pastor and Creasman published "Wyoming Basin-Yellowstone Plateau Interaction: A Study of Obsidian Artifacts from Southwestern Wyoming" in *Tebiwa* 26(2). They determined that the use of obsidian increased through time, that Wright Creek (Malad, ID) and the Jackson area were the primary sources exploited and that the Green River cobble source was locally used. Aside from the local Green River cobble source, Malad and the Jackson area are the closest sources, both ca. 125 miles away from the general project area. When our results are compared to their findings, similar conclusions are reached. Additionally, more "exotic" sources were found in association with Archaeological District 48SU4000, which supports the notion that the district was a prehistoric "rendezvous" area.

THE END

