10TH BIENNIAL ROCKY MOUNTAIN ANTHROPOLOGICAL CONFERENCE

October 6-9, 2011

THE UNIVERSITY OF MONTANA, MISSOULA

PROGRAM & ABSTRACTS

Hosted by

YELLOWSTONE PARK FOUNDATION

The University of Montana

ROCKY MOUNTAIN ANTHROPOLOGICAL ASSOCIATION

Rocky Mountains Cooperative Ecosystem Studies Unit

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Cover Art: Eric Carlson

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RAIN SHADOW RESEARCH INC.

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ACKNOWLEDGEMENTS

THE 2011 RMAC ORGANIZING COMMITTEE WOULD LIKE TO ACKNOWLEDGE THE FOLLOWING CONFERENCE SPONSORS, WITHOUT WHICH THIS EVENT WOULD NOT BE POSSIBLE.

MANY THANKS TO:

ROCKY MOUNTAIN COOPERATIVE ECOSYSTEM STUDY UNIT OF THE NATIONAL PARK SERVICE

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The Yellowstone Park Foundation – working to protect, preserve and enhance the natural and cultural resources, and visitor experience of Yellowstone National Park. Funding was provided by the William H. Donnor Foundation.

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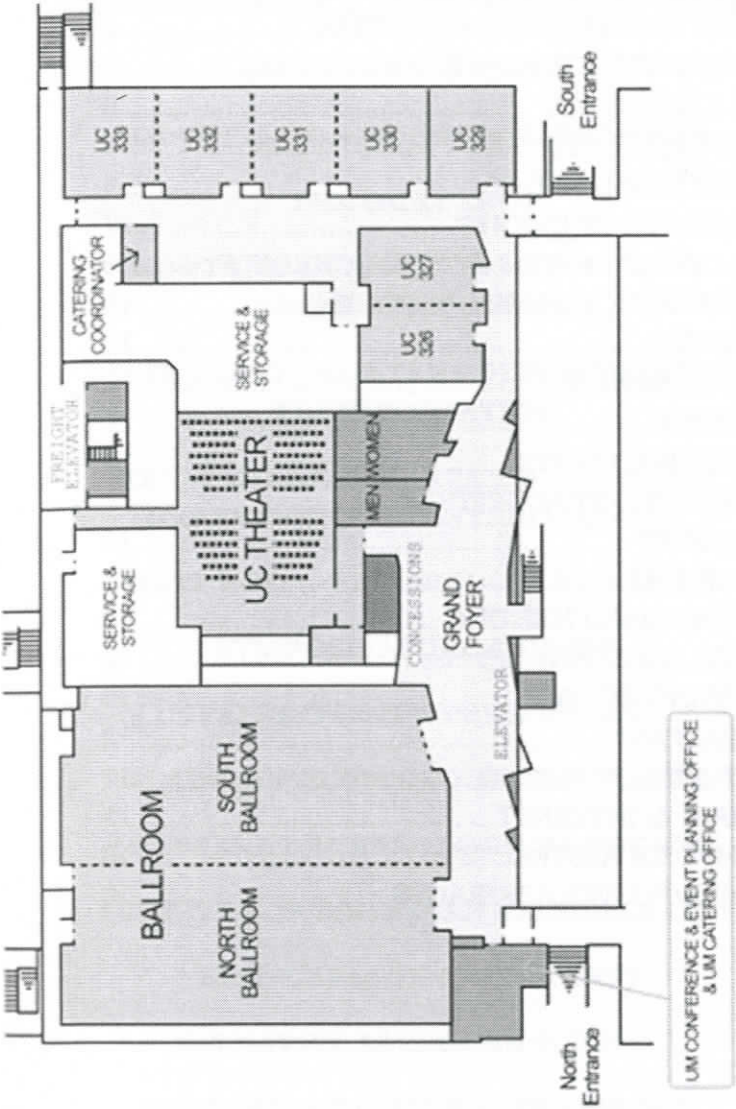
UM ANTHROPOLOGY FACULTY

UM CAMPUS MAP

UNIVERSITY CENTER 3RD FLOOR PLAN



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STEVE PLATT, MONTANA DEPARTMENT OF TRANSPORTATION

KELLY DIXON & MARTA TIMMONS, UM DEPARTMENT OF ANTHROPOLOGY

MATT ROOT, RAINSHADOW RESEARCH

SYMPOSIUM ORGANIZERS

PAPER/POSTER PRESENTERS

PLAINS ANTHROPOLOGICAL SOCIETY

MONTANA ARCHAEOLOGICAL SOCIETY

SOCIETY FOR AMERICAN ARCHAEOLOGY

ERIC CARLSON (COVER ART)

UM NATIVE AMERICAN STUDIES

MILO MCLEOD & T.WEBER GREISER

RMAC SCHEDULE OF EVENTS

Thursday, October 6

5-9	Conference Registration (3rd floor UC Grand Foyer)
5-9	Early Bird Meet & Greet at Doubletree Hotel Lounge

Friday, October 7

8-5	Conference Registration (3rd floor UC Grand Foyer)
8-5	Book Room (UC 333)
8-5	Viewing Room & Snacks (UC 329 Alumni Board Room)
8-12	Poster Symposium: CESU Posters & individual submissions
9-12	General Session: Euro/Native American Anth (UC Theater)
8-12	General Session: Rocky Mtn Archaeology (UC 326-327)
9-12	Symposium: Federal Lands & CESU Research (UC 330-332)
1-5	Poster Session: CESU posters & Last Canyon Session
1-5	General Session: Rocky Mtn Archaeology (UC 326-327)
1-5	Symposium: Lithics in the Rockies (UC 330-332)
5-6	RMAC Business Meeting (329 UC Alumni Board Room)
7-10	Payne Native American Center meet and greet

Saturday, October 8

8-5	Conference Registration (3rd floor UC Grand Foyer)
8-5	Viewing Room & Snacks (329 UC Alumni Board Room)
8-5	Book Room (UC 333)
8-12	Poster Symposium: From Clovis to Shoshone & Water to Ice
9-12	Symposium: Current Research at UM (UC 326-327)
8-12	Symposium: Footprints in the Snow: Papers in Honor of Dr. James B. Benedict (330-332)
1-5	Symposium: Footprints in the Snow: Papers in Honor of Dr. James B. Benedict (330-332)
1-5	Symposium: Yellowstone Archaeology (UC 326-327)
1-5	Poster Session: Individual Submissions
6-9	Banquet (UC North Ballroom) ($25/person). Milo McLeod & T. Weber Greiser will discuss their experiences working with the late Lewis Binford.

Sunday, October 9

9-3	Field Trip to Black Bear Coulee Paleoindian site (Drummond); Coloma/Garnet ghost towns. Bag lunch provided. Meet in parking lot south of UC.

2011 RMAC PAPER & POSTER SCHEDULE

ORAL PRESENTATIONS ARE 20 MINUTES
POSTERS WILL BE PRESENTED IN THE MEETING FOYER
SEE ABSTRACTS FOR SYMPOSIA, PAPER, & POSTER ABSTRACTS

Friday, October 7

8-5 (1) **Poster Symposium: CESU Posters**
Cannon et al, Brunswig & Sellet, Doerner et al, Troyer & LaBelle

8-12 (2) **General Poster Session**
Chambers, Losey, Boehm et al, Stone, Bunn, Newton, Byers, S.White, Mahoney

9-12 (3) **General Session: Contemporary Euro- and Native American Anthropology (UC Theater)**
9:00-Suzukovich; 9:20-Suzukovich; 9:40-Medrano; 10:00-Packwood; 10:20-Greymorning; 10:40-Hooper; 11:00-Wagner; 11:20-Bendremer & Auld; 11:40-Q&A

8-12:20 (4) **General Session: Rocky Mtn Archaeology (UC 326-327)**
8:00-Tornow & Arbor; 8:20-Bies: 8:40-Bochniak & Moe; 9:00-Cummings; 9:20-Thompson & Branton; 9:40-Thompson & Todd; 10:00-Walker & Bogstie; 10:20-Harrell et al; 10:40-C. Morgan; 11:00-Truesdale; 11:20-Root et al; 11:40-Husted; 12:00-Loosle

9-12 (5) **Symposium: Federal Lands Heritage and Cultural Resources Research: RM-CESU Projects (UC 330-332)**
9:00-Yu et al: 9:20-Kornfeld et al; 9:40-Reckin et al; 10:00-Brunswig and Sellet; 10:20-Campbell; 10:40-McBeth; 11:00-Diggs et al; 11:20-Finley et al.; 11:40-Q & A

1-5 (6) **Poster Symposium: CESU-Last Canyon Archaeology**
Finley & Harvey, Friess & Minckley, Berg-Mattson & Minckley, Martin, Hoffman et al

1-5 (7) **General Session: Rocky Mtn Archaeology (UC 326-327)**
1:00-Dukeman; 1:20-Ahlman; 1:40-Evans et al; 2:00-B. Morgan et al; 2:20-Johnston; 2:40-Bartlett; 3:00-R. Adams; 3:20-Pool & Lee; 3:40-Peterson; 4:00-Nash; 4:20-Storm & Loosle

1-5 (8) **Symposium: Lithics in the Rockies (UC 330-332)**
1:00-MacDonald; 1:20-Harris; 1:40-Root; 2:00- J. Adams et al; 2:20-Surovell & Waguespack; 2:40-Carpenter & Fisher; 3:00-Prentiss et al; 3:20-Naudinot et al; 3:40-Ostahowski & Kelly; 4:00-Andrefsky; 4:20-Q & A

Saturday, October 8

8-12 (9) **Poster Symposium: From Clovis to Shoshone & Water to Ice: Summer 2011 Archaeology in SE Idaho**
Bloxham et al, Bowman & Cannon, Gauthier & Dalpra, Farrell, Fowler et al, McNamera, Sky & Conrad, Walker & Patton, Yates

9-12 (10) **Symposium: UM Research (UC 326-327)**
9:00-Auge; 9:20-Heiner; 9:40-McElroy; 10:00-Schwitters; 10:20-Wood; 10:40-Keremedjiev; 11:00-Bar-el & Felton Rosulek; 11:20-Appelbaum

8-12 (11) **Symposium: Footprints in the Snow: Papers in Honor of Dr. James B. Benedict (330-332)**
8:00-Labelle & Cassells; 8:20-Pelton; 8:40-R. Adams; 9:00-Brink; 9:20-Brunswig; 9:40-Cannon & Cannon; 10:00-Bowyer; 10:20-Kindig; 10:40-Andrews; 11:00-Finley

1-5 (12) **General Poster Session**
Anderson, Huber, Hewitt, White and Summers, Cannon, Barnett, Frederick, Owens, Boyd, Millonig

1-5 (11) **Symposium: Footprints in the Snow: Papers in Honor of Dr. James B. Benedict (330-332)**
1:00-Metcalf; 1:20-Bender; 1:40-Lee & Benedict; 2:00-Black & Theis; 2:20-Holliday et al; 2:40-Troyer; 3:00-Schroeder; 3:20-Cassells; 3:40-Kornfeld; 4:00-Pitblado; 4:20-LaBelle

1-5 (13) **Symposium: Yellowstone Archaeology (UC 326-327)**
1:00-Eckerle et al; 1:20-Cannon & Cannon; 1:40-MacDonald; 2:00-J. Adams; 2:20-McIntyre; 2:40-Livers; 3:00-Hare; 3:20-Eakin; 3:40-Greer et al; 4:00-Park

6-9 **Banquet: Milo McLeod and T. Weber Greiser on their experiences working with Lewis Binford (UC North Ballroom)**

ROCKY
MOUNTAIN
ANTHROPOLOGICAL
ASSOCIATION

Welcome to the University of Montana, Missoula. We are honored to host the 10th Biennial Rocky Mountain Anthropological Conference. We hope you enjoy your visit and the conference.

CONFERENCE HEADQUARTERS

Conference headquarters is the University Center at the University of Montana. A map of the third floor is shown above. Our conference hotels are the Doubletree and the Campus Inn, both a stone's throw north of the University of Montana across the beautiful Clark Fork River. Several other hotels are in that area as well.

PRESENTATIONS

All presentations will use powerpoint and a PC-based computer using the Windows operating system. No MACs will be available nor will you be allowed to use your own laptop. Come prepared for your presentation to work on a PC laptop. Please arrive 20-30 minutes prior to the start of your session to load your presentations and make sure they work, prior to the start of the session.

PARKING

Parking at the University Center is free after 5 pm and on Saturday and Sunday. On Friday, during the meeting, you will need a parking permit if you plan to drive to campus. You can purchase a permit at the registration table or go to the parking permit office east of the football stadium.

REGISTRATION

A registration table is located in the atrium of the 3rd Floor, University Center. It will be open Thursday evening through Saturday afternoon.

T SHIRTS

Conference T-shirts are for sale at the registration desk. They are $15. The illustration below by Eric Carlson is shown on the shirt:

EARLY BIRD PARTY

The Early Bird Party is scheduled for 5-9 pm, Thursday, October 6, in the lounge of the Doubletree Hotel.

FRIDAY NIGHT RECEPTION

On Friday evening from 6-9 pm, there will be a reception with hors d'oevres and cash bar at the Payne Family Native American Center in the center of campus. This is a beautiful building, the newest on campus.

BANQUET

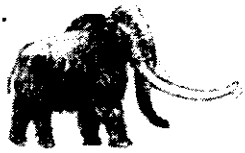
On Saturday night from 6-9 pm, the University Center North Ballroom will host the conference banquet. The Guest Speakers will be Milo McLeod and T. Weber Greiser, talking about their experiences as students of Lewis Binford. The cost is $25 per person. A cash bar will be available with alcoholic and non-alcoholic drinks.

FIELD TRIP

A post-conference field trip will occur on Sunday morning at 9 am. We will meet in the parking lot of the University Center (south). We will go to the Coloma and/or Garnet Ghost Towns, as well as to the Black Bear Coulee Prehistoric Archaeological Site near Drummond.

RMAA BOARD MEETING

The Rocky Mountain Anthropological Association will hold its board meeting from 5-6 pm in 329 University Center (the Alumni Board Room).



RMAA ELECTIONS

Elections for 4 new members of the Board of Directors of the Rocky Mountain Anthropological Association will be held during the conference. Ballots are available at the registration desk.

VIEWING ROOM

The Alumni Board Room (UC 329) is available for you to sit down and view your presentations.

BREAKFAST

A continental breakfast will be served to conference registrants Friday and Saturday morning (7:30-10:00) in the Alumni Board Room (UC 329).

AFTERNOON SNACKS

Afternoon snacks and cold drinks will be served in the Alumni Board Room (UC 329) to conference registrants on Friday & Saturday between 1:30-3:30.

EMAIL & INTERNET

On the north end of the 3rd floor of the University Center, two computers are available for internet/email checking.

SYMPOSIA ABSTRACTS

(11) Footprints in the Snow: Papers in Honor of Dr. James B. Benedict

Organizer/Chair: Jason Labelle (Colorado State University)

Dr. James B. Benedict was certainly a pioneer in the fields of alpine ecology and archaeology, publishing articles on a myriad of topics including game drives, lichenometry, neo-glaciation, hunter-gatherer mobility, and the Altithermal, among many other subjects. His report series, published by his Center for Mountain Archaeology, provide some of the finest examples of holistic science, effortlessly incorporating geology, climate, animal ethology, history, and archaeology, in telling the story of his beloved Indian Peaks in the Colorado Front Range. With Jim's passing in March 2011, we have truly lost an amazing scholar, someone whose vast contributions will leave us much more than just "footprints in the snow". In this session, we bring together friends, colleagues, and admirers of Jim, to honor his unique contributions to Rocky Mountain alpine science. Papers within this symposium take two forms. First, there are papers reflecting on Jim, his work, and his interactions with colleagues in the field. Other presenters provide snapshots of their current research as related to Jim's influence on the discipline.

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(5) Federal Lands Heritage and Cultural Resources Research in the Rocky Mountains: A Showcase of Cooperative Ecosystem Studies Unit (CESU) System Projects

Organizers/Chairs: Pei-Lin Yu (RM-CESU) & Robert Brunswig (University of Northern Colorado)

Since its inception in 1999, the Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU) has helped federal agencies meet their cultural resources research and technical assistance needs in partnership with universities throughout the Rocky Mountain west. This session describes the way that the RM-CESU works and highlights the scope, diversity, depth, and influence of scientific and scholarly research conducted through the RM-CESU partnership through papers and posters presented by principal investigators and students. The paper session will be complemented by posters.

(6) Last Canyon Cave (24CB879): A Multidisciplinary Investigation

Organizers/Chairs: Houston Martin & Marcel Kornfeld (both, University of Wyoming)

Last Canyon Cave is an important addition to paleoecological research in the northern Bighorn Basin. Its 40,000 year-old depositional record provides a window into the Late Pleistocene. This is a time period poorly represented in the region, as few sites contain sediments dating during this time range . The unique conditions within the shelter provide multiple venues for investigation, including pollen and macrobotanical material, paleofeces, and extinct and extant fauna. Current studies consider many aspects of the site's natural history, including its formational history, changes in vegetation and fire frequency. The paleofeces provide a paleoclimatic signature through morphology, composition and stable isotope analysis. Sites like Last Canyon supplement our understanding of the region's natural history and aid the understanding of human inhabitation of the area. This project was begun in 2008, under a Rocky Mountains CESU agreement with the Bureau of Land Management.

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(8) Lithics in the Rockies

Organizers/Chairs: Douglas H. MacDonald (University of Montana) & William Andrefsky, Jr. (Washington State University)

On an international scale, stone tool and debitage analysis has matured intellectually, incorporating elements of human behavioral ecology, technological organization, land-use strategies, functional interpretations, and a variety of methodological advancements. This symposium seeks to link the rich archaeological lithic data base from the Rocky Mountains with some of the contemporary theoretical and analytical approaches used in stone tool and debitage analysis today. Ultimately, the session highlights the role that lithic analysis (in all its forms) plays in solving research problems in the prehistory of the Rocky Mountain region of North America.

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(10) Current Research At the University of Montana

Organizer/Chair: Richard A. Sattler (University of Montana)

This symposium includes exciting research results of current students and faculty at the University of Montana.

(13) Current Research in the Greater Yellowstone Ecosystem
Organizers/Chairs: Elaine Hale (National Park Service) & Michael Livers (University of Montana)

The Greater Yellowstone Region is several million acres of nearly pristine, natural landscape within the Rocky Mountains of Idaho, Montana, and Wyoming. Evidence for human occupation of this intermountain area in the Northern Rockies extends back at least 11,000 years before present. From work in the Wind River Mountains to the shores of Yellowstone Lake, the research presented here includes a variety of archaeologically related topics covering multiple time periods and locations within the study area. The addition of current work supplements a growing knowledge base with the aim of better understanding past lifeways and use patterns across the Greater Yellowstone Ecosystem.

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(9) From Clovis to Shoshone & Water to Ice: Summer 2011 Archaeological Field Research in Southeastern Idaho
Organizer/Chair: Bonnie Pitblado (Utah State University)

This symposium reports on original archaeological research conducted by graduate and undergraduate student members of the 2011 Utah State University Archaeological Field School. Projects reported span the time frame from Clovis through Shoshone, and explore a wide range of ecological questions. Many team members report on the availability of resources in the present or recent past in southeastern Idaho, with an eye toward eventually marrying the results to paleoecological reconstructions that facilitate reconstructing availability of the same resources in the past. Others report on the archaeological and geological potential of deep basalt crevices that house ice and, in some cases, frozen fauna including now-extirpated bison remains. Still others interpret sites including the late Paleoindian Fox site and the summer's "mystery site" (now solved)—dating to the mid- to late-1900s. Our student presenters look forward to sharing their research with you and to hearing your thoughts on their diverse range of subjects.

PAPER/POSTER ABSTRACTS

Adams, Jacob S. (Washington State University), **Douglas H. MacDonald** and **Michael C. Livers** (both, University of Montana)

(8) Differential Use of Lithic Raw Materials in the Gardiner Basin of Yellowstone National Park, Montana

Analysis of lithic artifact data from archaeological sites in northern Yellowstone National Park indicates that prehistoric hunter-gatherers were relying on individual mobility patterns during the Holocene. Temporal data regarding lithic raw material use was obtained from intact hearth features at the Yellowstone Bank Cache site (24YE355) and the Airport Rings site (24YE357) located in the lowest, driest portion of Yellowstone Park, the Gardiner Basin. Obsidian Cliff obsidian and Crescent Hill chert represent the majority of the debitage found in the features, suggesting variable procurement of raw materials during prehistory. Instead of these data indicating a direct temporal split between the Late Archaic and the Late Prehistoric there seems to be continuity within and between the periods exhibited by the differential use of lithic raw materials.

Adams, Jacob S. (Washington State University)

(13) Crescent Hill Chert: The Characterization of a Lithic Raw Material Source in Yellowstone National Park, Wyoming

Crescent Hill chert, next to Obsidian Cliff obsidian, represents the second most common raw material type found in archaeological assemblages of the Gardiner Basin in Yellowstone National Park. To gain a better understanding of the lithic technological organization of prehistoric hunter-gatherers utilizing the Gardiner Basin, a characterization of Crescent Hill cherts was imperative to establish the provenance of the material. Cherts represent an interesting scenario in characterization studies with the extensive sequence of diagenetic events that they go through. To obtain a successful characterization a reliance on a suite of techniques is essential. Here, I provide the methodology and results of macroscopic analysis, petrographic analysis, and geochemical analysis. Crescent Hill chert is best characterized with macroscopic and petrographic techniques, with geochemical analysis proving a fruitless avenue.

Adams, Richard (Office of the Wyoming State Archaeologist)

(11) James Benedict's Influence on High Altitude Archaeology in the Rocky Mountains

The late James Benedict accrued more high altitude experience than any other archaeologist and his expertise is reflected in his innovative and extraordinarily detailed reports of alpine archaeology and geology along Colorado's Front Range. From hunting to gathering, from Paleoindian to Late

Prehistoric, from site excavation to rotary transhumance, and from mountain tops to valley floors, Benedict's insightful and thought-provoking work shaped the direction of high altitude archaeology in the Rockies and worldwide. This paper pays homage to his work by contrasting some of the differences between the archaeology of the Colorado Front Range and the mountains of western Wyoming and the Great Basin.

Adams, Richard (Frison Institute, University of Wyoming)
(7) The Rocky Mountain Soapstone Industry and High Altitude Archaeology
Sooty residue from a recently discovered soapstone bowl was AMS radiocarbon dated to 160± BP (Beta 282441), which intercepts the calibrated radiocarbon curve several times between AD 1670 and 1800. The bowl was found in a hearth-related feature (dated to 110± 30 BP [Beta 302874]) at a site in Wyoming's Great Divide Basin (48SW17902) with Late Prehistoric artifacts and features consistent with occupation by Shoshone Indians. This new information allows me to trace the life history of a soapstone bowl from its final resting place in the desert back to its origin high in the mountains, where soapstone workshops and artifacts are often associated with high altitude villages.

Ahlman, Todd M., Brian Herbel, Eric Carlson, and **T. Weber Greiser** (all, Historical Research Associates, Inc.)
(7) Contrasting Occupations along the Kootenai River in Northwestern Montana: An Examination of the Occupations at Sites 24LN202 and 24LN2210
Recent archaeological investigations at Sites 24LN202 and 24LN2210 in northwestern Montana revealed two different occupation types at sites located in close proximity to each other along the Kootenai River in Lincoln County. Site 24LN202 is situated on a colluvial fan and appears to date to the pre-contact Middle Period. The relatively small assemblage from the site reveals a limited occupation that likely served as a transitory worksite or camp. Site 24LN2210 is situated on a recent alluvial terrace and includes three distinct occupations dating from 320-5150 B.P. The faunal and lithic assemblage is indicative of a resource processing campsite that was repeatedly used or occupied for 5000 years. Among the interesting finds at Site 24LN2210 is a possible pithouse that appears to have been used during the site's second occupation period. Interpretation of the respective assemblages was aided by the collaboration of archaeologists from Historical Research Associates, Inc., Bonneville Power Administration, the Kootenai National Forest, and Tribal members from the Confederated Salish and Kootenai Tribes.

Andrefsky, William Jr. (Washington State University)
(8) More than just Debitage: Unmodified Flakes and Cutting Efficiency
In most North American archaeological assemblages unmodified flakes are regarded as debitage or debris from stone tool production efforts. However, there is a great deal of ethnographic information that suggests unmodified flakes are not only effective as cutting and scraping tools, but that they are preferred as tools by aboriginal tool makers and users. In many circumstances contemporary tool users prefer unmodified flakes over retouched flakes and more formalized stone tools. This study examines the results of cutting efficiency tests conducted on unmodified and modified flake tools. Results of wood working experiments show that unmodified flake tools are more efficient cutting tools than modified flake tools, and that different kinds of lithic raw material may also be more effective and efficient for cutting than other kinds of raw materials. One implication of this study is that archaeologists may be overlooking an important tool category if they emphasize tool use activities based solely upon analysis of modified stone objects and not unmodified flakes. These results are particularly relevant for archaeological assemblages located away from primary and secondary sources of chippable stone used for tool making.

Anderson, Ian and **Gaia Ewing** (both, Colorado State University)
The aim of this research poster is to determine whether or not the assemblage of projectile points found at the Mountaineer Site in Gunnison, CO go through the same stages of production, as described by Bradley, when compared against the rest of the assemblage and whether or not this pattern fits into one established by precious experiments conducted on other sites. It is our belief that there will be no difference in the stages of manufacture that the points go through before reaching their final stages.

Andrews, Brian N. (Rogers State University)
(11) Beyond the Great Divide: The Mountaineer Site and Folsom Occupation of the Western Slope
Evidence of Paleoindian occupation in the interior Rocky Mountains has grown substantially over the past two decades. Basins and inter-mountain parks of the interior Rockies were initially considered peripheral to the "core" Plains cultural area, though several have been shown to have relatively high Paleoindian site densities. This is especially true for Folsom groups. Large scale regional patterns of occupation are addressed and supplemented with a review of ongoing research into Folsom period occupation of the Upper Gunnison Basin, including recent investigations at the Mountaineer Folsom site – a spatially extensive, long-term residential site. Evidence from the site and others in the Gunnison Basin suggests a pattern of

reduced residential mobility that may be distinct from mobility strategies utilized by groups in the Plains.

Appelbaum, Irene (University of Montana)
(10) Why Social Sciences (including Linguistics and Anthropology) Are Genuine Sciences
Efforts to defend the view that linguistics, anthropology (and the social sciences more generally) are genuine, rather than pseudo-, sorta, or second-rate sciences, often flounder on the following dilemma: explanations in the social sciences are viewed as scientific only to the extent that they are cast in terms of some other, i.e., natural, science; but to this extent, the explanations are not specifically linguistic or, not specifically anthropological. In this paper, I argue that social sciences can satisfy both horns of the dilemma -- they can be genuine sciences without being reduced to some other science. The key to my argument is to understand explanatory power in terms of capturing generalizations, and to recognize that the latter depends on describing phenomena at the appropriate level of description, rather than at the lowest level of description. For the types of phenomena social scientists aim to explain, the appropriate level of description is often the particular social scientific level. In other words, linguistics, for example, is a genuine science because there are effects in the world that are best explained by appeal to specifically linguistic -- not e.g., acoustic or biological -- entities.

Auge, Cynthia Riley (University of Montana)
(10) Embedded Implication of Cultural Worldviews in the Use and Pattern of Magical Material Culture
The continuing challenge for archaeologists of ritual and magic revolves around recognition of such beliefs and practices in the archaeological record. This is especially true in contexts where material culture functions as both mundane utilitarian objects and magical devices simultaneously or alternatively. Mere typologies are insufficient to distinguish magical application from quotidian use. A critical first step in recognizing magical material culture involves understanding the embeddedness of worldviews, particularly aspects of cosmology, in the use and pattern of magical material culture. This paper will examine the implicated roles of religious frameworks and doctrine with cosmological constructs on 'cultural logic' by using a seventeenth century Anglo-European numerology example to illustrate the connection between worldviews and material expression.

Bar-el, Leora and **Laura Felton Rosulek** (The University of Montana)
(10) The place of Montana on the North American dialectal map: a first look
This study represents the first systematic analysis of the dialects of English in Montana, a state that has largely been ignored by dialectal studies. Montanans were excluded from large-scale studies (Kretzschmar 2004); in others only a very restricted subset of the population were interviewed (O'Hare 1964, Cassidy 1985, Labov et al. 2006). With their limited data, these studies have tended to classify Montana English as part of the Western American English Dialect. Their actual results and our linguistic observations suggest that the situation on the ground is much more complex. Speakers in Montana use patterns typically found in several other varieties, including Inland North and Mid-Atlantic dialects. Moreover, multiple dialects appear to be present. To systematically describe the varieties of English spoken within Montana as well as their places within the dialect geography of North America, we collected linguistic data from college-aged Montanans. Analysis of phonological and syntactic data shows that Montana English does contain features of dialects other than Western American English. Ideological data suggests that speakers perceive there are several varieties of English in Montana which are influenced by the many borders (international, state, geographical, social, etc.) within the state.

Barnett, Kristen, Anna M. Prentiss, Rose Campbell, Bob O'Boyle, and **Matthew Walsh** (all, University of Montana)
(12) Dust, Debitage, and Dietary Resources: A Square Butte Progress Report
This poster highlights the progress of the 2011 field season excavations and research conducted at Square Butte, Rocky Boy Reservation, Montana. Square Butte is located in the Bear's Paw Mountains, a virtual mountainous island on the North Central Plains of Montana. Square Butte provides an exceptional example of a late prehistoric period (1,000-500 BP) hunter-gatherer site allowing for the study of land use practices such as bison hunting and processing, plant gathering, tool production, and mobility. This poster offers preliminary results from Phase I excavations at Square Butte. This is intended as a preview of future work to be conducted.

Bartlett, Stephanie L. (Current Archaeological Research, Inc.)
(7) Early Archaic Sites from the Upper Green River Basin, Sublette County, Wyoming
Thompson and Pastor's (1995) People of the Sage proposed a settlement-subsistence model for the Wyoming Basin based on data from the Lower Green River Basin. Few Early Archaic Period sites were known at that time. Since then, the Upper Green River Basin has become a major area of development and over 3500 new sites have been recorded. Of the 929

radiocarbon dates produced in Sublette County, 642 (68%) represent the Early Archaic Period. Fifty-five sites were examined for this study. These sites each have large numbers of features, domestic structures and/or unique activity areas that are dated to the Early Archaic Period. The data from the sites supported the broad diet breadth proposed by the Thompson and Pastor model. However, the new data was unable to provide additional insight into the seasonal movements across the landscape of Early Archaic peoples.

Bender, Susan J. (Professor Emerita, Skidmore College)
(11) Modeling Forager Settlements of Mountainous Landscapes
In his classic 1979 paper, James Benedict proposed a two-draught Altithermal model to explain human settlement of the mountainous regions of central Colorado. His hypothesis that Plains populations settled the eastern slopes of the Rocky Mountains ca. 7000-6500 BP and again ca. 6000-5500BP in response to draught conditions on the Plains has since been the benchmark against which students of forager mountainous settlements have evaluated their data and penned alternative models. A ten-year research program conducted in Colorado's South Park has yielded evidence of a long-term and recurrent seasonal occupation of this mountainous landscape that both conforms to and contradicts elements of that early model. While moving toward a more flexible approach to mapping the seasonal rounds of mountain-dwelling hunters and gatherers, we can acknowledge the centrality of Benedict's work in framing our study of such phenomena.

Bendremer, Jeffrey C. (Salish Kootenai College) and **Francis Auld** (Confederated Salish and Kootenai Tribes)
(3) A Tribal Historic Preservation Major for Salish Kootenai College: Curriculum Development and Collaboration in Indian Country
Every American Indian tribe is engaged in efforts to protect, document and investigate its historic and cultural resources. Many tribes (89 at last count) pursue these goals with Tribal Historic Preservation Offices though many more do this work through their cultural departments, museums or archaeology programs. In order to better train and prepare prospective preservation professionals, a unique undergraduate degree program in Tribal Historic Preservation is currently being developed at Salish Kootenai College under a grant from the National Endowment for the Humanities. The proposed SKC program will provide specific and essential training to students whose goal is work in tribal historic preservation programs, museums, cultural departments and government agencies and programs. This paper describes the ongoing process of curriculum development including efforts aimed at collaboration with Montana tribal historic preservation offices, particularly that of the Confederated Salish and Kootenai Tribes. The resulting program

will actively contribute to the THPO's mission while simultaneously providing students with field and laboratory experience, internships and research opportunities.

Berg-Mattson, Noah and **Thomas Minckley**
(6) Late Pleistocene and early Holocene vegetation history of the Bighorn Basin recorded in Last Canyon Cave
Pollen and macrobotanical material from aeolian transported dust deposits in Last Canyon Cave reveals a record of environmental change in the Bighorn Basin from >40 to ~8 kiloannum (ka) before present. Artemisia (sagebrush) and Asteraceae (sunflowers) dominated before 29 ka. Prior to peak glaciation Artemisia decreased, while Asteraceae and other herbaceous taxa increased coincident with herbaceous seeds from Cryptantha, Eriogonum, and Amaranthus. Artemisia increased from 21 to 14.5 ka. From 14.5 ka to the early Holocene, herbaceous taxa become dominant in the record. From these data we infer millennial-scale alterations of steppe and tundra-like conditions during the last glacial period.

Bies, Michael T. (Bureau of Land Management, Worland, Wyoming)
(4) Conical Pole Lodges and Possible Prehistoric Travel Routes
This paper discusses three conical pole lodge sites and travel routes on the East slope of the Absaroka Mountains in the Bighorn Basin of Wyoming. The similarities of the sites and their association with connected travel routes in difficult terrain will be explored.

Black, Kevin D. and **Aaron Theis** (both, History Colorado)
(11) Progress and Prospects in Geoarchaeological Research on Cherty Toolstone Sources in Central Colorado
Over the past four field seasons, the Antelope Gulch Survey project has been conducted in the central Colorado mountains where the open grass-lands of South Park give way to the wooded uplands of the Arkansas Hills. Although the evidence for extensive use of locally available cherts— especially iron-rich jaspers—is not surprising, the diversity of geological settings where those toolstone sources occur has been more unexpected. In combination with previous inventory data, our survey indicates that cherty toolstones likely occur in an intermittent 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. With the aid of GIS manipulation of digitized geological maps, we will summarize our current understanding of toolstone distribution and density toward the definition of a central Colorado jasper source zone. This zone includes the well-known Trout

Creek site, which past studies tend to overemphasize as a geographically limited source of jasper.

Bloxham, Megan (Utah State University), **Abram Sorensen** (Utah State University), and **Amy Lapp** (Bureau of Land Management, Pocatello)
(9) The Well Known "Secret" You've Never Heard Of...And It's Time You Did!
Our poster features an effort to research a poorly known but archaeologically and geologically important southeastern Idaho landmark and to interpret the locality in a YouTube video that will capture a young demographic often missed by traditional marketing campaigns. Our project focuses on Formation Springs and an associated cave located just north of Soda Springs, Idaho. Formation Springs is an ecologically diverse preserve, rich with wildlife and unique travertine geological formations. The area is jointly owned and interpreted by the BLM and Nature Conservancy. The spring and surrounding lands have drawn myriad animals, birds, and humans for millennia, with human visitors including indigenous peoples, historic settlers and trappers, and contemporary tourists. A team of USU archaeology field school students surveyed the Formation Springs property and recorded all the sites and isolated finds encountered. We followed up on this field work by researching BLM and Nature Conservancy records and interviewing local residents to learn more about our finds. In so doing, we compiled information on land ownership, geology, hydrology, ecology, and past and present human use of the locality. To disseminate our results, we created a short YouTube video highlighting our research results, which we will make available for viewing during our poster session. We aimed to help the BLM use social media to reach a young demographic, and to do so in a fresh way that would offer a model for interpretation of other sites and landmarks on public lands.

Bochniak, Victoria (Project Archaeology, Montana State University) and **Jeanne M. Moe**
(4) Absaroka Agency Excavations: Public Outreach Outcomes
In conjunction with the 2011 excavations at the Absaroka Agency Archaeological Site, Project Archaeology developed a public outreach program for visitors. The interpretive plan involved interactive site tours to serve casual visitors and a brief questionnaire to determine how and what people learned when visiting the site. During test excavations in 2006 the lead archaeologist described the majority of visitors as local residents who often remained longer than he had time to talk to them. Based on this information, the tour was designed to last ten to twenty minutes to limit the amount of time visitors stayed. The results from this brief study were unexpected. The number of visitors who stayed through the entire presentation was much

lower than anticipated, and only a small sample of completed questionnaires was collected. This paper posits explanations for the low number of visitors. While the interpretive plan proved to be very useful for the tour groups and Crow tribal members who visited the site, it was not logistically feasible to assess learning outcomes for these groups. The logistical difficulties encountered in assessment and the low number of casual visitors points to the need for highlighting access to site tours for archaeological education and public outreach.

Boehm, Andrew, Richard Anderson, and **David Meltzer** (all, Southern Methodist University)
(2) Blocks X and Y: Determining the Natural Signature of the Mountaineer Site
Arguments for house structures at the Folsom-aged Mountaineer site are based primarily on the cultural modification of bedrock and the spatial distribution of artifacts. In order to confidently argue that these features were culturally modified, we must identify the natural signature of the Mountaineer site. Between 2009-2011, we excavated two natural (i.e. non-culturally modified) areas, Blocks X and Y, of the site. These 'natural' areas were defined as areas relatively devoid of lithic, opalide, and/or bone artifacts. We present the results of these excavations, as well as comparisons between these findings and the patterns found in the Folsom cultural areas. The data from the natural areas show a 'random' spatial distribution of >40 cm bedrock pieces, random spatial distributions of artifacts, and naturally created daub, naturally burned sediments and naturally burned bedrock. The spatial distribution of rhyolite is also examined in order to investigate the possibility of its use as a raw material. We show that the Folsom activity areas and structures contain highly concentrated and/or differentiated distributions of artifacts, relative to the material distributions of blocks X and Y.

Bowman, Kate and **Molly Cannon** (both, Utah State University)
(9) Water, Water Everywhere: Streams and Springs in Southeastern Idaho and Northern Utah
The Utah State University (USU) Southeastern Idaho & Northern Utah Paleoindian Research Program (SINUPP) team has argued for several years that our project area is exceptionally well watered compared to other, archaeologically better known regions of the Intermountain West. Our research focuses on quantifying just how much water occurs in our study region today, with a long-term goal of interpreting how much water was present in the Terminal Pleistocene and Early Holocene, when people first used the region. For this poster we conducted a Geographic Information System (GIS) analysis of streams and springs to systemically evaluate and quantify the amount and distribution of water resources in seven counties in

southeastern Idaho and two in northern Utah. We then applied the same GIS to several other areas of the American West to determine if the perceived abundance of water in the SINUPP project area could be empirically illustrated. Areas used for comparison were chosen for their known archaeological significance and include Elko and Grand counties in Nevada, Montezuma County in Colorado, Yellowstone National Park, and Grand County in Utah. The two primary sources of water in the SINUPP area are streams and springs. Southeastern Idaho is a hotbed of geological activity and there are literally thousands of documented springs in our focal area. Over 15,000 kilometers of water is available in permanent and ephemeral streams. By comparison, only Elko County, Nevada has a comparable amount of land located within a kilometer of a spring; and only Yellowstone National Park, just to the north of the SINUPP project area, has more land within a kilometer of a stream or river. The SINUPP project area does indeed appear to be quantifiably unique in the plethora of springs, streams, and drainages dispersed widely across this landscape.

Bowyer, Vandy E. (University of Alberta)

(11) Altitudinal Migration of Caribou and Implications for Human Hunting on Ice Patches, Southwest Yukon

During the warm summer of 1997, extensive deposits of prehistoric caribou (Rangifer tarandus) dung and a small fragment of a 4000 year old hunting dart were collected from a melting ice patch in southern Yukon Territory. Since then numerous ice patches containing caribou dung and archaeological materials dating back more than 8000 years have been identified for the region. Caribou were an important animal to precontact inhabitants of the southwest Yukon, but our current understanding of caribou hunting strategies throughout the Holocene is not well developed. Productive avenues for understanding ancient caribou hunting patterns can be made through an analysis of general theoretical assumptions based on analogy from modern caribou populations. Modern behavioral analogues of caribou in the southwest Yukon indicate that their movement is characterized by smaller scale altitudinal migration as a response to topographic relief. It is proposed that precontact hunters took advantage of the movements of caribou in the summer when animals moved to the alpine to seek high quality forage and use ice patches for relief from insects and heat. Testing this model is explored using independently collected palynological data sets from caribou dung. This research has broader implications for understanding hunter-gatherer land-use in mountainous regions of western North America.

Boyd, Joshua

(12) Site Formation and Pinon Pine Tree Throws

Shallow sub-surface sites are common in the Rocky Mountain region. These sites are affected over time by major geological and environmental processes. Pinon juniper ecosystems are common in the regions ecotones and overtime have dominated much of the landscape in the past. Long after prehistoric activities take place and archaeological remains are deposited, natural processes penetrate and disturb these remains. Tree throws commonly occur in these environments uplifting and disturbing the ground below. When this takes place in an archaeological deposit artifacts are vertically displaced from original provenance to be redeposited according to the process of root ball erosion and decay. In an attempt to better understand this process, tree throws are observed and described with attention to the disturbance created, size of tree and relative environmental characteristics. This data is used to infer possible disturbance to archaeological record and better understand site formation processes observed on shallow sub-surface Rocky Mountain archaeological deposits.

Brink, Jack (Royal Alberta Museum)

(11) Communal Pronghorn and Bison Hunting: Stone Drive Lanes on the Alberta Plains

Stone drive lanes are a feature of many communal game kill sites but are little studied as important archaeological features in themselves. Yet their configuration on the landscape—shape, size, orientation, response to topography, differential rock loading—all speak to a complex system of knowledge that Native groups had of their prey animal. The placement and density of drive lane rocks at several newly-discovered sites in southeastern Alberta exhibit patterns that must have been grounded in knowledge of bison habits with respect to travel, flight response, predator avoidance, vision, stampede behavior, and a variety of other traits. Sites interpreted as bison and pronghorn communal drives are reported, the difficulty of distinguishing between them is discussed, and differing methods of driving bison vs. pronghorn are proposed. Preserved drive lanes are landscape artifacts; "maps" that reflect a vast human understanding of the animal world. Jim Benedict wrote some of the most important literature on stone game drives; this paper celebrates that legacy.

Brunswig, Robert (University of Northern Colorado)

(11) In Their Footsteps: Jim Benedict and his Predecessors in Rocky Mountain National Park Archeology

Today, Rocky Mountain National Park has one of the most intensively documented cultural landscapes in the Southern Rocky Mountains. Much of

that documentation is based in a five-year National Park Service-funded archeological inventory program operated by the University of Northern Colorado from 1998-2002. However, that inventory was made largely possible by earlier archeological pioneers in the park beginning in the 1930s (Jack Moomaw and Elizabeth Yelm), 1950s (Wil Husted), and from the early 1980s, Jim Benedict's research on high altitude game drive, seasonal camp, and vision-quest sites in and near park boundaries. Benedict's work, most recently focused on ice patch archeology, continued until shortly before his recent passing. This paper is a review of, and homage to, Jim and the earlier archeologist pioneers who contributed so much to the understanding of the Native American archeology of Rocky Mountain National Park.

Brunswig, Robert (University of Northern Colorado) and **Frederic Sellet**
(1 & 5) The Numic Expansion, Ute archaeology, and the Southern Rockies: New insights from stratified hunting camps in Colorado's North Park Valley
Contemporary archaeological thought places the initial expansion of Numic Ute peoples into central Colorado's Southern Rocky Mountains no earlier than 400 years ago. Since 2003, University of Northern Colorado (UNC) archaeologists, funded by the Bureau of Land Management (BLM) through a Rocky Mountains CESU agreement, the Colorado State Historic Fund (SHF), and UNC internal grant sources, have excavated nearly 50 m2 of successive, seasonally utilized prehistoric hunting camp occupations AMS-radiocarbon dated between 800 and 550 rcybp. The occupations have produced side- and corner- notched projectile points, Ute (Uncompahgre Brownware) pottery, dozens of formal and informal tools, thousands of debitage flakes, ground stone, and substantial butchered and processed animal bone belonging to bison, pronghorn, elk, bighorn sheep, and possibly moose. The site provides the most substantial body of evidence yet for an early prehistoric Ute presence in what was later historically documented as traditional Ute territory in central Colorado's Southern Rockies.

Bunn, Cherise (Colorado State University)
(2) Suburban Stoneware: Early Ceramic Pottery at the Fossil Creek site in Northern Colorado
Native American pottery is an uncommon find on sites in Northern Colorado, but when discovered it can be influential in identifying many aspects of a prehistoric society. This research project aims to identify certain aspects of prehistoric groups by quantifying how many pottery vessels are present at a site recently discovered near the Colorado foothills. The Fossil Creek site is located between Fort Collins and Loveland, Colorado, along the ecotone separating the foothills of the Southern Rocky Mountains and the Great Plains. Students from the 2011 Colorado State University field school recently

surveyed and tested this site, recovering over 60 Plains Woodland projectile points, 13 gallons of groundstone, and numerous sherds of Plains Woodland cord-marked pottery. To understand the number of pottery vessels present on the site, sherds are analyzed and compared in terms of color, size, mass, temper, and decoration. The spatial distribution of the sherds is also examined, as it may help in determining the number of vessels on site or possible taphonomic disturbances over the last 1000 years. The pottery is also compared to other known cord-marked pottery sites in the area, in order to determine if this assemblage is similar to others in terms of size and style. In defining the number of vessels and comparing them to other sites, this research project provides insight towards identifying the subsistence patterns and the number of people occupying the Fossil Creek site during the Late Prehistoric period.

Byers, David (Missouri State University), **Halcyon LaPoint** (Custer National Forest) and **Mike Bergstrom** (Custer National Forest)
(2) Recent Research in the Pryor Mountains: The Missouri State University Bear Canyon Project
Missouri State University, in cooperation with the Custer National Forest, conducted fieldwork in the Pryor Mountains of Montana during July 2011. This project included both a rockshelter survey in Bear Canyon, located on the southern slope of Big Pryor Mountain, and the testing of two prehistoric sites within the same drainage. Test excavations included work at sites 24CB168 and 24CB1677. Bovid remains eroding from a cutbank at 24CB168 signaled the potential for buried cultural material and excavations encountered almost one meter of cultural deposits containing large artiodactyl bone, a partial mountain sheep skull and abundant debitage. Site 24CB1677 contained approximately 60 cm of cultural deposits dominated by debitage, as well as large blanks and lanceolate performs. Survey focused on the documentation of caves and rockshelters within the Bear Canyon drainage. This investigation included an intensive inspection of the canyon's limestone cliff bands for shelters, caves and other features that might contain cultural material. This survey documented 75 shelters and several were large, deep and contained abundant sediment, and these will be the focus of next summer's research.

Campbell, Greg (University of Montana)
(5) Cultural landscapes as cultural identity: ethnobotanical resources in defining cultural beliefs and practices
Native Americans perceive aspects of land and resources as critical to their maintenance as distinct peoples. The cultural landscape therefore remains a vital link to their past as well as the provider for many of the values, traditions, and materials that are necessary for the continuation of cultural practices.

Ethnobotanical resources play a prominent role in defining cultural beliefs and practices. Using ethnological and ethnohistorical data from three Indigenous nations flora resources are tangible environmental features and resources that remain a critical cultural and religious component of the traditional landscape that creates as well as reinforces their cultural identities. This paper discusses ethnobotanical work conducted under RM-CESU agreements with the National Park Service's Sand Creek Massacre and Fort Laramie National Historic Sites.

Cannon, Kenneth P. (USU Archeological Services, Inc.; Utah State University) and **Molly Boeka Cannon** (Utah State University)
(13) The Goetz Site: A Multicomponent Site in Jackson Hole, Wyoming
In 1972 the University of Wyoming excavated what was reported as a bison kill site on the National Elk Refuge, Jackson Hole, Wyoming. A minimum age of the kill was placed at 500 years. Reanalysis of the kill indicates that it dates to ca. 800 years ago. Reinvestigation of the site from 2001-2004 has revealed that the bison kill was only one component of a more complicated site history that may extend back 10,000 years. Good preservation at the site has provided a paleoenvironmental record that compliments regional histories, yet provides local response to these patterns. In this paper we will discuss the latest findings of our work, including new radiocarbon ages, geomorphologic investigations and economic patterns, within the context the Greater Yellowstone Ecosystem.

Cannon, Kenneth P. (USU Archeological Services, Inc. and Department of Sociology, Social Work, & Anthropology, Utah State University) and **Molly Boeka Cannon** (Department of Sociology, Social Work, & Anthropology, Utah State University)
(11) Looking for a Long-term Record in the Greater Yellowstone Ecosystem: Some Thoughts about the Stinking Springs Rockshelter, Teton County, Wyoming
The mountainous environment of northwestern Wyoming is not known for the preservation of organic remains, specifically that of vertebrate species. The paucity of vertebrate remains has hampered the ability of researchers to understand the evolution of the Quaternary mammalian community, which is in sharp contrast to the detailed understanding of the region's geologic, climatic, and vegetation history. The few sites that have produced vertebrate remains have been largely confined to dry caves and rockshelters in the surrounding region and a few open air archaeological sites. In southern Teton County we have located a large rockshelter at the mouth of Hoback Canyon that presents a unique opportunity to recover a long-term mammalian record documenting Quaternary paleoecological change. In 2010, the Utah State University Field School conducted limited controlled excavations.

Excavations produced evidence of stratified deposits to a depth of 1.9 m. Remains recovered include lithic debitage, hearth features, faunal remains, and a possible large mammal processing area. Two specimens, one on Pinus charcoal from a depth of 1.9 m and a portion of a bighorn sheep mandible from 1.0 m, were submitted for radiocarbon assay. The ages are 4350 ± 25 yrs BP and 3360 ± 25 yrs BP, respectively.

Cannon, Kenneth P., Molly Boeka Cannon, and **Jonathan Peart** (all, Utah State University)

(12) Archaeological Investigations at the New Fork River Crossing Park, Sublette County, Wyoming

The Sublette County Historical Society has recently acquired approximately 82 acres along the west bank of the New Fork River that will open in the Summer of 2012 as the Lander Trail New Fork River Crossing Historical Park. Contemporary records, journal entries, and recent investigations by the BLM indicate that a major river crossing lies within the park boundary establishing its historical significance. As part of the preparation for the park's opening USU Archeological Services and the Spatial Data Collection Analysis Visualization Lab applied a series of remote sensing technologies (e.g., metal detecting, ground penetrating radar, magnetometer survey) in order to assess the presence of Emigrant Era deposits. The "island" area was a main focus of the investigations and items recovered are likely associated with late 1850s-early 1860s use of the trail. The results of the 2011 investigations are presented.

Cannon, Molly Boeka, Kenneth P. Cannon, Bonnie L. Pitblado, and **Jonathan Peart**

(1) Recent Utah State University CESU projects in Colorado and Idaho

Our poster highlights four projects in Idaho and Colorado that have made important contributions to archaeology while involving undergraduate and graduate students in diverse research undertakings. The Idaho projects include the creation of an archaeofaunal database and an investigation of climate change on the Snake River Plain. In the former, Utah State University (USU) partnered with the Bureau of Land Management (BLM), Burley office to create a GIS-linked inventory of vertebrate animal remains from Idaho archaeological sites. The climate change project, which involves USU, the BLM's Burley and Shoshone Field Offices, and Craters of the Moon National Monument, aims to reconstruct diachronic climate change using microfaunal remains from caves. Our first RM-CESU project in Colorado involves development of a Geographic Information System (GIS) map and database of events that occurred at the Sand Creek Massacre National Historic Site (NPS). The GIS incorporates ethnographic and indigenous information as well as

archaeological and historic data. Finally, we describe a RM-CESU partnership with the NPS's Curecanti National Recreation Area that supported test excavations of a rock-art adorned rock shelter at a quartzite quarry. The results will help the NPS manage this unusual resource as well as generating a master's thesis for co-author Jonathan Peart.

Carpenter, Scott L. (InteResources Planning, Inc.) & **Philip R. Fisher** (Washington State University)
(8) The Yearling Spring Obsidian Cache, Park County, Montana
A cache of obsidian bifaces, flake tools, and core fragments was found in southwestern Montana eroding from a cutbank near an intermittent creek south of the Yellowstone River. Ongoing investigations have documented a total of 59 specimens. Fifty eight of the pieces were found on the ground surface down slope from recent washout or within the sod layer, indicating a previous but recent slope failure. The specimens were coated with red ochre. No flake debitage was found, indicating that the pieces were not manufactured on site. The exposed cutbank exhibited a stain of red ochre. Archaeological excavations were undertaken during the spring of 2011, revealing a portion of a subsurface ochre pit with one obsidian biface in situ. No other artifacts or features were found in association with the subsurface ochre pit. Two specimens with possible usewear were analyzed for protein residue analysis exhibiting anti-sera for Salmonidae and Cervidae. Geoarchaeological studies have been undertaken with sampling for planned soil analysis and OSL dating. An initial sample of 24 specimens have been submitted for XRF obsidian source characterization and hydration rim measurements for possible dating. The source of the 24 pieces is attributed to Obsidian Cliff, Wyoming.

Cassells, E. Steve (Laramie County Community College)
(11) Lichenometry Applications in the Colorado High Country
Lichenometry, the use of known lichen growth rates to determine ages of substrates on which they are growing, has been used primarily within geological and archaeological contexts. It was pioneered in Colorado by Dr. James Benedict (Center for Mountain Archeology) to age recent Holocene glacial events. He then expanded the research to age episodes of construction of cultural features above tree limit in the Front Range. Under Benedict's guidance, this approach has since been adopted by others and applied at a variety of sites. This paper will review the principles and techniques and some of the projects where it has proven to be useful in the Rockies and elsewhere.

Chambers, Jason (Colorado State University)
(2) Patterns in Space: Examining the Spatial Patterning of Refuse Distribution at the Lindenmeier Folsom Site (5LR13)
The Lindenmeier Folsom site was originally excavated between 1934-1940 by Frank H.H. Roberts, Jr. of the Smithsonian Institution, with the Concluding Report on these excavations published nearly 40 years later in 1978 by Edwin Wilmsen. The report detailed the wealth of lithic and bone materials recovered, a great variety of materials representing a wide variety of tasks performed by the site's occupants. In this presentation, the published artifact distribution maps are digitized and entered into a GIS database in order to examine the spatial structure of these materials recorded during excavation. This poster seeks to answer questions about the overall nature of the distribution of over 5,000 materials mapped in situ. Does the distribution of these materials represent primary refuse deposited directly from activities undertaken at the site, or are they a product of secondary refuse removal processes, such as trash dumping and other maintenance activities? Such over-arching questions are addressed to further our interpretation of the range of activities performed at this 10,780 RCYBP Folsom campsite.

Cummings, Linda S. (PaleoResearch, Inc.)
(4) Evidence for Subsistence at High Elevation
Examination of food processing tools and features from sites at higher elevations indicate that at least some of the people using the montane, subalpine, and alpine zones packed for the trip. Recovery of pollen, phytoliths, and starches provides evidence of transport of valuable subsistence items to higher elevation. In fact, analysis of a metate recovered near treeline in central Colorado indicates that this metate had spent part of its useful life at lower elevations, documenting transport of tools, as well as food. Tracking tools through space and examining evidence of their use for processing food plants indicates that at least some of these mobile people took their tools with them. Packing for forays into country at higher elevation, perhaps for hunting, apparently included taking food staples that included cultivated plants. Evidence from sites in both Colorado and Utah is highlighted. Exploitation of multiple ecotones, whether for agriculture, hunting, day trips, or extended stays continues to be an engaging question. As data accumulate, it becomes apparent that it is difficult to generalize the interpretations of use of the high country.

Diggs, David, Robert Brunswig (University of Northern Colorado), and **Sarajo Lambert**

(5) GIS and the use of viewshed analysis in modeling a Native American sacred landscape in Rocky Mountain National Park, Colorado

Rocky Mountain National Park (RMNP), Colorado, has more than 400 documented Native American sites, some of which are now believed to have served religious purposes. Field and Native American (Ute and Arapaho) consultation data have been incorporated into successive generations of a Geographic Information System (GIS) project designed to model and predict the spatial distribution of sacred sites and ritual features believed to represent long-lost landscapes. In recent iterations of RMNP sacred landscape GIS project modeling conducted for RMNP under a RM-CESU agreement, a Weights-of-Evidence site location predictive technique was developed. The resulting model enhancement showed the strong influence of the relative visibility of five sacred landmarks with known or suspected spiritual places represented by archaeological features. This paper describes how multi-feature and multi-landmark viewshed analysis techniques are used to evaluate the relative and absolute visibility of the five sacred natural landmarks with native built spiritual sites and associated features. The research suggests that both strength of visibility and total number of landmarks visible are strongly associated with the location of native sacred features.

Doerner, James, David Diggs, and **Robert Brunswig** (University of Northern Colorado)

(1) Cultural-natural landscapes and ecological patch islands in Forest Canyon Pass, Rocky Mountain National Park

In 2008, University of Northern Colorado and Rocky Mountain National Park scientists conducted interdisciplinary studies of the park's Forest Canyon Pass under a RM-CESU agreement. The project conducted archeological survey, paleoclimatic/paleoenvironmental studies, modern botanical and faunal surveys, and initial Geographic Information System (GIS) modeling of prehistoric through historic Native American occupations of the Pass. Forest Canyon Pass research is based in a cultural ecosystems theoretical approach known as Patch Island Ecology. The pass and its extremely dense concentration of camp sites is geographically and culturally linked to numerous, significant high altitude sites, including three major game drives and a 14 acre sacred site, all on alpine tundra. This presentation details the project's results support a working hypothesis that the Pass, home to the ancient Ute Trail and an unusually rich concentration of natural resources, was one of the Park's most heavily utilized areas, with seasonal camp occupations dating between 9,500 and 150 years ago.

Dukeman, Casey D. (Western State College of Colorado)
(7) Wood, Bone, or Hide Working at 5GN151: Reevaluating the Utility of Processing Tools through Use-Wear Experiments
Since its initial discovery, by amateur archaeologist Bill Lanning, 5GN151 has been interpreted as an animal processing site located on a natural high elevation divide within the Colorado Rocky Mountains. Evidence of numerous scrapers, choppers, and specialized gravers and awls have always given credence to the suggestion that prehistoric people, as early as Folsom, used the tool stone materials which are found readily available at the Lanning Site (a naturally outcropping chert and quartzite), for processing trapped or ambushed large game animals. Because three seasons of test survey and excavation at Lanning failed to yield evidence of faunal material, the question of the validity of 5GN151's initial interpretation as an animal processing locality is frequently called into question by this and other researchers. In an attempt to evaluate these questions of site utility, ethnographic accounts for animal and wood processing, coupled with the macroscopic and microscopic use wear analysis of the tool assemblage will help to not only to shed light on the use-life history of the processing tools in the assemblage, but also allow further inference as to the kinds of activities that took place at 5GN151.

Eakin, Daniel H. (Office of the Wyoming State Archaeologist)
(13) Archaeological Investigations along the Nez Perce National Historic Trail, Yellowstone National Park
In 2008 Yellowstone National Park (YNP), in partnership with the Office of the Wyoming State Archaeologist, initiated the Nez Perce National Historic Trail (NPNHT). The goal of the project was the identification of both prehistoric and historic archaeological sites within the YNP portion of the NPNHT corridor. A major focus of the project was the use of archival and other resources in an attempt to identify Nez Perce, U.S. Military, and civilian localities associated with the Nez Perce War of 1877. Three seasons of metal detector survey have been completed. Study areas extend from the Lower Geyser Basin in the west, to Hoodoo Basin, near the park's eastern boundary. Study areas include portions of the Nez Perce Creek Valley, Central Plateau, Hayden Valley, Otter Creek, Mist Creek, Mirror Plateau, Lamar Valley, and Parker Peak. Seventy-three sites have been identified and range from Paleoindian to early 20th century in age. Several Nez Perce War-related sites have been identified. These include the Radersburg party wagon abandonment locality, General Howard's bivouac of August 31st, the Helena party camp, and a possible Nez Perce camp near Parker Peak. Several contact period Native American sites, non-war related military, and tourist sites, have also been found. Results of these investigations are discussed in light of both the well documented and poorly understood sections of the NPNHT.

Eckerle, William (Western GeoArch Research, LLC), **Andrea Brunelle, Vachel Carter, Ken Peterson** (University of Utah RED Lab), **Mitchell Power** (University of Utah/Utah Museum of Natural History Garrett Herbarium)
(13) Preliminary Paleoenvironmental Analysis of Sediments from Soda Lake in the Foothills of the Wind River Mountains, Wyoming, USA
Sediment cores recovered in 2010-2011 from Soda Lake on the western slope of the Wind River Mountains yield a laminated, continuous, high-resolution paleoclimate proxy record that spans the last ~14,000 years. Project goals include a paleoenvironmental reconstruction of vegetation, climate, and disturbance along with statistical tests of a Reid Bryson archaeoclimate model. These paleoenvironmental indicators will be used for the prediction of temporal changes in prehistoric archaeological food resource availability. Documentation and analysis of 350 cm of both freeze-core and piston-core segments includes GeoTek imagery, magnetic and density readings, pollen analysis, carbonate loss-on-ignition, diatom identification, charcoal counts, tephra ID, and radiocarbon assay. Over thirty 14C dates resolve ≤ 4 cm thick analytical units to ~100 years/sample, thus yielding exceptional chronostratigraphic control.

Evans, Krista, Devin Pettigrew, and **Joanna Wurst** (all, University of Wyoming)
(7) Hell Gap: Continuing chronostratigraphic investigations
Abstract: Hell Gap is a stratified prehistoric site located in the Hartville Uplift, north of Guernsey, Wyoming. Investigated between 1959 and 1967, primarily for its Paleoindian occupations, the results yielded a chronostratigraphic sequence with nine cultural complexes mostly representing residential campsites. Subsequent Paleoindian studies have questioned the sequence of complexes recovered at Hell Gap requiring renewed field investigations focusing on site geomorphology and formation processes. The renewed excavations were begun in the mid 1990s and have now reached the Hell Gap component. In this presentation, we review the most recent field studies at the site and provide results of the preliminary analysis.

Farrell, John (Utah State University)
(9) Clovis, Obsidian and the Tetons
Thanks to help from members of the Driggs and Victor, ID public, members of Utah State University's Southeastern Idaho and Northern Utah Paleoindian Research Program (SINUPP) recently documented intriguing finds of numerous Paleo-Indian artifacts—including most significantly Clovis spear points and bifaces—on the west side of the Teton Basin. Fortunately, Clovis knappers made most of the Teton Basin tools from obsidian that can be geochemically matched to its geologic source. Sourcing yields data that may

help elucidate where these particular Clovis tool-makers traveled during or just prior to their stay in the Tetons. And, because members of the Clovis culture were the first widespread occupants of North America, these same data have the potential to speak to debates over the directionality of the spread of Clovis people and/or technology across the continent. My poster reports the results of ED-XRF sourcing of about a dozen obsidian Clovis and later Paleoindian artifacts from the Teton Basin sites recorded by SINUPP investigators. I then offer preliminary inferences about the settlement strategies of Clovis colonists; place those findings into the context of the current debate over the geographic origin of Clovis technology (Southeast versus Northwest versus Northern Plains); and compare and contrast the obsidian sources exploited by Early versus Late Paleoindians who used the Teton Basin.

Finley, Judson Byrd (University of Memphis)
(11) Multi-Proxy Records of Holocene Climate Change in the Central Rocky Mountains
Among Jim Benedict's contributions to interdisciplinary archaeological research are his studies of Holocene glacial chronology in the Colorado Front Range. Along with Gerald Richmond's Wind River Range chronology, Benedict's work provides the framework for understanding regional Holocene climate variation. Building on Benedict's work, recent studies from multiple paleoclimate proxies are revealing the complex climatic interactions that structure regional climate. In this paper, I review Benedict's glacial studies and discuss current understandings of Holocene climate variation in the Central Rocky Mountains. I place these studies within the context of my own geoarchaeological research in the Bighorn Basin and examine the contributions of rockshelter and alluvial deposits to a program of regional interdisciplinary paleoenvironmental research.

Finley, Judson Byrd (University of Memphis), **Chris Finley, Laura Scheiber** (Indiana University), and **Kelly Branam**
(5) Tipi Ring research and community archaeology in Bighorn Canyon National Recreation Area
Abstract: Located between the Bighorn and Pryor Mountains, Bighorn Canyon National Recreation Area contains many archaeological sites but has seen little archaeological research since Larry Loendorf's work there in the early 1970s. With support from the National Park Service and the RM-CESU, along with the cooperation of several academic institutions and non-profit organizations, we have completed a multi-year project documenting tipi ring camps associated with the Bad Pass Trail. In keeping with the CESU mission, our work has assisted federal resource managers with compliance while

providing research and training opportunities for both undergraduate and graduate students. Most recently, with the support of both the RM-CESU and the Great Rivers CESU, we began a community archaeology project with Crow and Northern Cheyenne tribal members. While the community archaeology project began as a week-long outreach program for recent high school graduates, it has now shifted to a six-week archaeological training class intended to provide job opportunities for tribal members as well as prepare staff for growing Tribal Historic Preservation Offices on both reservations. Our presentation summarizes the results of both projects.

Finley, Judson Byrd (University of Memphis) and **David C. Harvey**
(6) Geological history of Last Canyon Cave
The geologic setting of Last Canyon Cave is the greatest factor contributing to its importance as an archive of Late Pleistocene paleoecological data. Few sites in the northern Bighorn Basin preserve sediments dating ca. 30,000-10,000 14C BP, and even fewer contain eolian sediments equivalent to the Peoria loess. Last Canyon Cave formed in a sandy facies of the Madison Formation Limestone and has two distinct Late Pleistocene strata. Stratum 1 is associated primarily with weathering and granular disintegration of the surrounding walls and ceiling, while Stratum 2 is the Peoria loess equivalent. Subtle variations in texture and mineralogical composition mark the sedimentological differences. Significant horizontal facies variations exist within Stratum 2, complicating correlation of deposits from the rear of the shelter towards its entrance. Stratum 2 sediments have remained relatively dry through time, preserving the remarkable paleoecological record, and have been altered minimally through precipitation of secondary carbonates. While bioturbation and recent vandalism have impacted the stratigraphy, these factors can be filtered to develop a relatively comprehensive picture of the site's formation history.

Fowler, Benjamin, Bonnie Pitblado, Joel Pederson, and **Holly Andrew** (all, Utah State University)
(9) A Geoarchaeological Gem: The Story of a Late Paleoindian Site in Southeastern Idaho
Archaeologists at Utah State University (USU) are working to understand Paleoindian occupation of southeastern Idaho, an under-studied region with a rich and diverse prehistoric record. Collaboration in 2008 with members of local communities introduced us to the Fox Site, a multi-component locality near Thatcher, ID, with human occupation dating from Late Paleoindian through Shoshone time and in situ dates on charcoal as old as 6,000 radiocarbon years. The Fox site is located along Hoopes Creek above the Bear River. In summer 2011, as follow-up to testing in 2009, members of the

USU team excavated 14 1 x 1 m excavation units and 3 backhoe trenches (each > 7 m deep) at Fox. We aimed to refine our preliminary understanding of the geomorphology of the site and its cultural occupations. We learned that the Fox Site sits atop Lake Bonneville sediments dating to the Bonneville high-stand. Over time, Hoopes Creek deposited gravel fans that both inter-finger with and overlie Bonneville sediments. Above the Bonneville deposits, we identified areas with thick loess deposits. Radiocarbon dates currently being analyzed will reveal whether or not those sediments take us farther back in time than 6,000 years—and if so, just how far back. Our poster reports these and other 2011 findings.

Fredericks, Brian A. (Bureau of Land Management)
(12) Multi-Component use of the Cochetopa Creek area in the Gunnison Basin
During the summer of 2011, the Bureau of Land Management conducted cultural resource inventories of several roads in the Cochetopa Creek area located in the Gunnison Basin of southwest Colorado. The inventories uncovered multiple previously unrecorded prehistoric sites. These newly discovered sites are located in the same area as a previously recorded Ute fortification site, showing multi-component use of the land. The cultural survey's revealed a large number of flakes, some tools exposed on the site surface, and few culturally peeled trees (possibly associated with the Ute fortification site). Tentative dating of diagnostic artifacts allows us to conclude that culturally significant use of the area spans from Archaic to Historic Ute occupation. The area has been used heavily for recreational activities and cattle grazing which suggests potential surficial disturbance. Previous archaeological documentation is limited in the survey area. This poster details the findings and research potential of the area.

Friess, Crystal and **Thomas Minckley** (both, University of Wyoming)
(6) Fire history from cave deposits: an example from Last Canyon Cave
Macroscopic charcoal fragments deposited in Last Canyon Cave were examined to infer the local fire history at the base of the Pryor Mountains and assess potential of cultural activity in the uppermost strata of this deposit. Charcoal influx averaged 3.35 charcoal pieces per gram of sediment increments prior to 25,000 years BP, but between 25,000 and 11,600 years BP, charcoal influxes averaged 0.68 charcoal pieces per gram sediment. After 11,600 BP charcoal influx increased two orders of magnitude to >70 charcoal pieces/gram sediment. This increase in charcoal deposition suggests human usage of the cave after 11,600 BP, barring alternative ignition sources not present during the late Pleistocene.

Gauthie, Jon and **Cody Dalpra** (both, Utah State University)
(9) What Lies Beneath: The Paleoenvironmental & Archaeological Data Potential of Deep Basalt Crevices in Southeastern Idaho
This poster reports our evaluation of ice crevices located along the Bear River west of Soda Springs, ID. The crevices occur across the Southern Idaho landscape, but have been largely overlooked as possible data sources in the archaeological and paleoenvironmental literature. Yet their potential is high to have served as game drives or storage features for prehistoric people, and they harbor microenvironments favoring preservation of packrat middens, faunal (macro and micro) remains, and permanent ice deposits.
We focused on three crevices and devised a methodology for recording them. We documented environmental data (temperature, crevice depth/dimensions, and ice retention) for each crevice in multiple places within the crevices. We also drafted sketch maps of floors and profiles of crevice walls. Finally, we recorded the potential for preserved faunal remains and middens, and took organic samples for possible radiocarbon dating.
Our findings indicate significant differences in ice retention and quantity of faunal remains present in each crevice. Both correlate with crevice depth and lack of sunlight exposure. Our most spectacular find consisted of a bison skull suspended in ice at the bottom of a deep (ca. 17.5m), sheltered crevice. Given that bison have been extirpated from southeastern Idaho for well over a century, we conclude that these intriguing geological features are capable of preserving important organic materials that may prove to have significant archaeological and paleoenvironmental value.

Greer, John and **Mavis Greer** (Greer Services) and **Elaine Skinner Hale** (National Park Service)
(13) The Old Faithful Petroglyph (48YE009): Yellowstone National Park's Only Known Rock Art
The only rock art site recorded so far in Yellowstone National Park is an atypical carved petroglyph located in the Old Faithful development area, just behind Old Faithful Inn, in the west-central part of the Park. The circular design is deeply carved into thermally deposited stone surrounding an almost extinct geyser. Although well visited over the years, the carving was first brought to the Park's attention in 1977 by a visitor from Billings, Montana, who sent a photograph and brief mention of the feature. In this presentation John and Mavis Greer consider chronological and possible ethnic affiliation, while Elaine Hale discusses archival research, historic context, and results of recent lichenometry analysis of Rhizocarpon geographicum lichen on the carving.

Greymorning, S. Neyooxet (University of Montana)
(3) Native Ethnobotany, a Tradition of Indigenous Healing Knowledge
Indians of the Americas have had a long and successful tradition in dealing with health issues. While Native traditions associated with health and healing have recently been seriously fragmented, the knowledge has not disappeared. This talk examines ethnobotanical knowledge of select tribal groups indigenous to the Americas, discussing how this knowledge has been applied, historically threatened, and at times used as an alternative to western society's "medicine men." The chapter also discusses the increasing number of hospitals allowing Native healers to apply their knowledge in the care of Native, and at times non-Native, patients.

Hare, Kristin (University of Montana)
(13) Look to the East: Late Archaic and Late Prehistoric Use of the Clear Creek Valley, Yellowstone National Park, Wyoming
The prehistory of Yellowstone Lake, Wyoming, is extremely rich, with well-known human occupation from the Paleoindian to Contact Period. During the 2010 and 2011 field seasons, the University of Montana conducted Section 110 surveys in the region surrounding the mouth of Clear Creek located on the eastern shore of Yellowstone Lake. East of the lake, the Absaroka Mountains are a formidable boundary, limiting points of access to the region; therefore, with its headwaters located at Sylvan Pass, the Clear Creek Valley provided an invaluable travel corridor for mobile hunter-gatherers travelling to and from the lake from the Big Horn Basin and vicinity. UM studied several sites along Clear Creek, revealing information about its active use in prehistory. The lithic assemblage of the sites include Late Prehistoric and Late Archaic projectile points, scrapers, bifaces, and debitage produced from approximately 40 different lithic raw materials. In addition, two hearths were identified dating to approximately 1500 B.P. Lithic data indicate that people used the Clear Creek region, acquiring raw materials both locally and extra-locally. This analysis will further develop our understanding of how prehistoric hunter-gatherers utilized the landscape of the Yellowstone and Greater Yellowstone region from 3000 to 300 B.P.

Harrell, Lynn (Bureau of Land Management, Kemmerer Field Office), **James H. Speer** and **Karla Hansen-Speer** (both, Indiana State University)
(4) Recent Investigations at the Bridger Antelope Trap in Southwest Wyoming
The BLM Kemmerer Field Office has been conducting investigations at the Bridger Antelope Trap, an early historic site in southwest Wyoming that is listed on the National Register of Historic Places. A dendrochronology study is being accomplished to collect information about the trap's age of construction and use. The analysis of two hundred tree ring samples

collected from old wood in the trap fence and from live trees in the area indicates that the trap was used for at least 300 years. An intensive inventory of the trap in September of 2010 recovered projectile points that suggest even earlier use of the site. This presentation will provide a summary of the dendrochronology study, and other information about the Bridger Antelope Trap, associated features, and artifacts.

Harris, Katherine (Washington State University)
(8) Human Landscape Use at Site 10-BT-8, Butte County, Idaho
Southern Idaho is an ideal setting for the study of prehistoric human landscape use. Obsidian sources are numerous on and near the Snake River Plain of Idaho, and it is common for the lithic assemblages of southern Idaho archaeological sites to be comprised of up to 90% obsidian, a fact that holds true at site 10-BT-8. Obsidian source characterization suggests a large circulation range for the prehistoric people using site 10-BT-8, with strong emphasis placed on the American Falls obsidian source. Three other sources, Bear Gulch, Big Southern Butte and Browns Bench were also utilized. While American Falls is the most frequently used source throughout time, there is variability in the utilization of the other obsidian sources. The combination of obsidian source characterization and technological organization data from core tools, bifaces and proximate flake debitage support the model that the people that used 10-BT-8 over the last 3,000 years were utilizing both distant and local obsidian sources while moving over a wide area of southeastern Idaho.

Heiner, Christina (University of Montana)
(10) Unhealthy Environments; Health and disease on the Flathead Reservation in the early 20th century
This paper examines the cause of death from Montana death certificates and records from the Bureau of Indian Affairs for the Salish and Kootenai people living on the Flathead Reservation for the early 20th century. This paper challenges notions that the assimilation policies of the US government and access to western medicine improved health outcomes for Native peoples. This paper also argues that ultimately health cannot be separated from the political economic and social context in which federal policies are carried out, especially for native peoples.

Hewitt, Mary (Colorado State University)
(12) Resting at the Rock: Lithic Analysis at Benedict's Rock, Northern Colorado
Recent 2011 summer excavations at Benedict's Rock (5BL232) by the Colorado State Archaeology Field School yielded lithic debitage and several point fragments in a circular pattern surrounding a large boulder. The site is

located in a montane region within the South Saint Vrain River valley, on the eastern slope of the Southern Rocky Mountains, near the Indian Peaks Wilderness Area. While most sites in the area represent palimpsests of temporal and spatial reoccupation, this site is unusual in that it appears to represent a single component Late Paleoindian Scottsbluff site, likely representing a short-term occupation or stopping off point. Twenty-three 1x1 meter excavation units were dug in the immediate area around the rock, in which artifacts were mapped and recorded with a total station, in addition to obtaining soil samples and drawing profiles. The frequency of raw materials and their spatial positions around the rock are analyzed to try to determine if a) this is a single occupancy site, and b) the types of raw material and their locations do indeed reflect the activities of a single individual. In addition, taphonomic processes are explored due to the site's location on an alluvial terrace.

Hoffman, Jonathan M., Mark T. Clementz, Thomas Minckley, Marcel Kornfeld, and **David Reid** (University of Wyoming)

(6) Environmental variation during the late Pleistocene in the Pryor Mountains, Montana

Fecal material from the Last Canyon Cave was collected for compositional and stable isotope analysis to examine how the environment in the Pryor Mountains of southern Montana has varied over the last 45 ka. Pellets produced by large ungulates (most likely Bighorn sheep) and rodents were distinguished based on size and showed a significant change in inorganic content through the section, implying increased aridity during the Last Glacial Maximum. Isotopic values of organic matter contained in these pellets were consistent with a predominantly C3 environment similar to that of today. Combined with pollen data, these results provide a late Pleistocene record of floral change in the region.

Holliday, Vance T. (University of Arizona), **Peter W. Birkeland** (University of Colorado), and **Daniel R. Muhs** (U.S. Geological Survey)

(11) Jim Benedict: Front Range Geoarchaeologist

Jim Benedict did ground-breaking work in the Colorado Front Range beginning in the 1960s in four fields: lichen dating, Holocene glaciations, periglacial landforms and processes, and archeology. He pursued all four while in graduate school, but the published papers in the first two fields became his PhD dissertation. One of his legacies is that Quaternary geologists used his techniques to map deposits throughout the Rocky Mountains. Other relative dating methods were added by Jim and others. One method was soils, listed in graduate school as his minor. Soil chronosequences on tills were a major thrust, and soils on the periglacial landscape of Niwot Ridge were

studied as catenas. More recently his mapped deposits have been studied by others using lake cores and cosmogenic dating. All of these studies were important in Jim's approach to and interpretation of the archaeological record.

Hooper, David A. (University of Montana)
(3) The Ethnobotany and Ecological Effects of Traditional Harvesting of Pipsissewa
Pipsissewa (Chimaphila umbellate) is one of the medicinal plants used by Coastal Salish Tribes, and that are becoming difficult to find. The difficulty is caused by current forestry practices, and converting pipsissewa's habitat into agricultural and suburbia lands. Because of their treaty rights, one possible source of this traditional medicine for members of the Nisqually tribe may be Mount Rainier National Park. From the Park's perspective any plant harvesting needs to be considered through the lens of the Organic Act of 1916. This act established the National Park Services' mission of providing recreation while conserving natural and cultural resources. The starting point to understanding how traditional plant harvesting could affect the National Park Service's mission is to ask two questions; how is pipsissewa harvested and does harvesting affect the plant's ecology? To address the first questions I have observed the Nisqually harvesting pipsissewa. The second question is being addressed by measuring plant species frequency, percent cover, and pipsissewa stem density in harvested and control plots. In this paper I present the initial results of this research into Pipsissewa harvesting by members of the Nisqually Tribe within Mount Rainier National Park.

Huber, Wendy (Colorado State University, Center of Plains and Mountain Archaeology)
(12) Activity Areas as Determined by Ant Mounds at the Fossil Creek Site, Northern Colorado
The 2011 Colorado State University Field School recorded the Fossil Creek site near Fort Collins, Colorado. This site, an Early Ceramic era locale (200-1100 AD), is located on a protected natural area situated near the Foothills of the Southern Rocky Mountains. The field school spent a week there conducting pedestrian survey, mapping, shovel testing, limited excavation, as well as noting modern disturbances such as historic farming and railroads, prairie dog holes, and ant mounds. The cultural assemblage includes abundant ground stone, projectile points, and pottery. In this poster, I argue that prehistoric activity areas may be determined by the quantity of micro-debitage found in the numerous ant mounds. As ants radiate out from their mounds, they collect pebbles and debitage and bring them back to their disc for mound construction. In doing so, they essentially complete a micro-level archaeological collection survey of the area surrounding their mound. I collected 23 samples from the Fossil Creek ant mounds and waterscreened

the sediment to collect bone fragments as well as micro-debitage. I argue that activity areas might be determined by comparing the overall pattern of artifacts found on the ground surface with those of the materials found in the ant mounds, with high concentrations of micro-debitage being located in areas of intense resharpening activities.

Husted, Wilfred M.

(4) Archaeology in the Rocky Mountain Region: Some Observations and Concerns (Paper to be read by Danny Walker)

This paper was presented at the 2001 Annual Meeting of The Wyoming Archaeological Society in Laramie, Wyoming. It is probably out of date in some respects, but I suspect that it retains more than a modicum of still valid observations and truths. I offer the paper again in hopes that all archaeologists interested in Rocky Mountain prehistory, professional, student and avocational, will take to heart my ten-year old observations and consider them in their pursuit of knowledge and truth in Rocky Mountain archaeology. I can no longer attend meetings and conferences held beyond Yellowstone County, Montana, and Dr. Danny Walker will present my paper. He is not responsible for any of its contents unless he wants to accept such a heavy responsibility.

Johnston, Christopher M. (Center for Mountain and Plains Archaeology, Colorado State University and Paleocultural Research Group) and **Mark D. Mitchell** (Paleocultural Research Group)

(7)An Archaic Lithic Workshop in the Southern Rocky Mountains: An Example from the Uncompahgre Cirque Site

In the summer of 2010 Paleocultural Research Group along with archaeologists from the Grand Mesa, Uncomphagre and Gunnison National Forest Service and Passport in Time volunteers excavated a high altitude site at the base of Uncompahgre Peak in Colorado's San Juan Mountains. The site, which is at an elevation of about 3,840 meters (over 12,500 feet), is located very near to chert outcrops that were utilized extensively for stone tool manufacture. Radiocarbon dates as well as diagnostic projectile points show that the site was occupied during the Early Archaic period. Surface mapping and excavation revealed a dense concentration of stone tool manufacturing debris, some tools and a fairly high frequency of imported raw materials, especially obsidian. Also observed at the site were three separate concentrations of flaking debris. Two of these "chipping stations" were analyzed using a minimum analytic nodule analysis method that allowed us to better understand the nature of some of the activities at the site. These results, along with an overview of the entire site, will be discussed.

Keremedjiev, Helen (University of Montana)
(10) Understanding the Past Using Credible Sources: The Impacts of On-site Interpretation of Archaeological Data, Historical Records, and Oral Accounts at Historic Battlefields in Montana
Interpreters and visitors of heritage sites often view archaeological data, primary documents, and oral accounts as credible links to understand the history of a cultural landscape. The public interpretation of these tangible and intangible sources either refines a specific place-based narrative or increases the social significance of a cultural landscape. Interpreted archaeological data, primary documents, and oral accounts can contribute to the intellectual and emotional responses of interpreters and visitors about historic events, especially at sacred landscapes that have a long-term history of on-site interpretation practices and commemorations. With memory archaeology as the underlying approach, this paper highlights the ways that interpreted primary sources affect the intellectual and emotional responses to four historic battlefields in Montana: Little Bighorn Battlefield National Monument; Nez Perce National Historic Park- Bear Paw Battlefield; Nez Perce National Historic Park- Big Hole National Battlefield; and Rosebud Battlefield State Park. The paper looks at three on-site interpretation practices: monuments; guided tours; and battle anniversaries. The analysis of these on-site interpretation practices comes from participant observations that were conducted during the summer and fall of 2010 at each of the battlefields.

Kindig, Jean Matthews (University of Colorado Museum)
(11) The work of and working with Jim Benedict
James B. Benedict passed away March 8, 2011. With his death passed a mind that synthesized two fields of study, geology and archaeology. Benedict started his career in 1961 as a research scientist in geology for INSTAAR, the Institute of Arctic & Alpine Research, University of Colorado at Boulder. He studied Holocene climate change in the Indian Peaks of the Front Range. His particular interest was in the Altithermal, an extended period of drought. He wanted to learn more about the paleoenvironment by understanding human occupation during this period of time. This interest sparked a career in archaeology. He started the Center for Mountain Archaeology in 1971, eventually publishing eight reports. He continued to publish topical research papers in scientific journals. He shared his knowledge with professionals at conferences and was a mentor to students and avocational archaeologists. Benedict earned a reputation as the premier high altitude archaeologist. This paper reviews Benedict's contributions to geology, archaeology, and the study of climate change; his interactions with volunteer crew members; and his method as a mentor.

Kornfeld, Marcel (PaleoIndian Research Lab-PiRL, University of Wyoming)
(11) Breathing Life into High Country Living
Significant portions of the Southern Rocky Mountains qualify as high altitude environments. Human biocultural adaptations to these environments must deal with stressors not encountered in other regions of North America. Middle Park has been occupied by foragers nearly as long as any other portions of the continent. How did the earliest populations cope with and adapt to these conditions? How did their choices differ from those at lower elevations? Jim Benedict's research has pushed the altitude envelope of human activity to above 4000 meters. Only in two other areas of the world do human regularly occupy such high country and in both they have adapted through genetic mutations as well as developmental and cultural adaptations. What did the first Coloradoans do?

Kornfeld, Marcel, Carolyn Sherve-Bybee, Judson Finley, and **Mary Lou Larson** (all, University of Wyoming)
(5) Life at the edge: Human occupation and paleoecology at the mountain-basin ecotone
Last Canyon Cave is a small rockshelter located at the bottom, southwestern edge of the Red Pryor foothills. Today the location is the ecotone between the conifer and sagebrush savannah of the foothills and the sagebrush grassland of the Bighorn Basin to the south. Sedimentation in the shelter began about 40,000 years ago and continued into the recent Holocene, sealing in a rich paleoecological record as well as a record of human occupation of southern Montana and northern Wyoming and by extension data on wider issues of global paleoclimates. First recorded in the 1970s, the shelter remained unexplored until our recent investigation began in 2007. In this presentation we report on the history of shelter investigation and our preliminary results thereby introducing a poster session featuring specific studies of shelter deposits. This project was begun in 2008, under an RM-CESU facilitated agreement with the Bureau of Land Management.

LaBelle, Jason M. (Center for Mountain & Plains Archaeology, Colorado State University) and **E. Steve Cassells** (Laramie County Community College)
(11) James B. Benedict and the Southern Rocky Mountains: A Lifetime of Research, A Labor of Love
James B. Benedict's impressive research record spans 45+ years, beginning with his first publication in 1965 and continuing to this day, with a final article in the review process. Jim's work, published in dozens of articles and his unique monograph series, made significant contributions to the fields of alpine geology and archaeology, in many cases pioneering Colorado

research in topics as varied as glacial sequences, lichenometry, the Altithermal, game drive systems, food processing locales, camps, and vision quest sites. In this brief synopsis, the authors provide an overview of Jim's research career, focusing on several of his important contributions, as well as conveying the impact of his work through published reviews and citation indices.

Lee, Craig M. (Montana State University and Metcalf Archeological Consultants) and **James B. Benedict** (Center for Mountain Archaeology)
(11) Pursuing Archaeology on Ice in the Conterminous United States
A variety of archaeological and paleobiological materials have been observed in association with melting ice patches in the Rocky Mountains of North America, including in the Greater Yellowstone Ecosystem (GYE), where recovered artifacts illustrate repeated use of these features by humans over millennia. Similar discoveries in Europe (e.g., Norway and Switzerland) suggest ice patches were an important element of the sociocultural and geographic landscape. Their use as hunting grounds may be a universal adaptation in montane regions with snow and ice. Beginning in 2002 we documented numerous paleobiological specimens recovered at ice patches in the Colorado Front Range (CFR) and undertook targeted surveys to identify archaeologically productive ice patches as "triage" in the face of global warming. To date, no CFR ice patches have yielded definitive archaeological materials. The absence of an obvious ice patch adaptation in the CFR may relate to preservation bias and the use of extensive game drive systems–features not seen in the alpine region of the GYE–following the onset of neoglaciation. During this period the CFR alpine ecosystem was used by larger groups for communal hunts as opposed to smaller groups using a targeted, encounter strategy focused on ice patches.

Livers, Michael C. (University of Montana)
(13) Park Point Obsidian: The Lost Source on Yellowstone Lake's Eastern Shoreline
This paper discusses the geographic location and prehistoric use of a relatively unknown igneous rock in Yellowstone National Park, Park Point obsidian. Analysis of obsidian use within the Greater Yellowstone area depicts lithic raw material acquisition patterns on a regional scale, emphasizing use of high quality, valued sources such as the Obsidian Cliff (WY) and Bear Gulch (ID) sources. Located on the eastern shore of Yellowstone Lake, just northeast of Park Point, poor quality obsidian nodules are intermixed with basalt gravels along a 200m long stretch of shoreline. These nodules vary in size, color, and quality and occur within the Pleistocene-Age Lava Creek welded ash tuff flow (Member B). Visual

analysis, as well as X-Ray Florescence, maps the movement of Park Point obsidian across a small area within the landscape, suggesting the Park Point source was a necessary, albeit poor choice for raw material to hunter-gatherers in the Yellowstone Ecosystem.

Loosle, Byron, Gary Weicks, Jim Klein, Anne Bagne, Gail Carbiener, Ed Bagne, and **Jeffrey Rust** (all, Ashley National Forest)
(4) Detecting the Ghost Road of the Uintas: The Carter Military Road
Between 2004 and the 2011 the Forest Service sponsored a series of Passport in Time projects and other research activities on the Carter Military Road, an 1880's era supply route that crossed the Uinta Mountains of northeastern Utah. This report will focus on the 2004 through 2007 projects when experienced metal detecting volunteers and Forest Service personnel were able to identify and map several road segments, nine military construction camps, a government sawmill, two civilian occupations, and other features of the Carter Military Road. Each camp search had its unique challenges and we will highlight a few examples. A variety of military items (buttons, insignias, cartridges) and mundane artifacts (cut nails) helped us identify the military camps used in 1882-83 and to distinguish them from contemporary civilian cabins.

Losey, Ashley (Utah State University)
(2) Archaeology, Dendrochronology, and Climate Change at High Rise Village, Wyoming
High Rise Village, elevation 10,700 ft, is one of several anomalous high altitude habitation sites in North America and the reasons for its occupation remain largely unknown. However, the site's climatically sensitive alpine/subalpine setting presents an opportunity to explore climate change as a driving factor for its occupation. Over the last 2000 years in Wyoming's Wind River Range, substantial climatic fluctuations appear to have fundamentally altered the resources and landscapes upon which hunting and gathering people relied. In particular, it appears that these fluctuations affected the distribution of Whitebark pine (Pinus albicaulis), likely a critical resource for aboriginal people living in the area. This study explores the magnitude of climatically-driven shifts in Whitebark pine availability and how they relate to changes in the intensity of site use through time. Specifically, preliminary work indicates there is an increase in site use during the Medieval Climatic Anomaly and this study explores whether there is a corresponding climatically-driven increase in the availability of Whitebark pine nuts. This two-part study will use dendrochronology to reconstruct fluctuations of the Whitebark pine dominated treeline and archaeology to explore its relationship to human behavior at High Rise Village.

MacDonald, Douglas H. (University of Montana)
(8) Deciphering Point-of-Origin for Prehistoric Hunter-Gatherers at Yellowstone Lake, Wyoming: A Case Study in Lithic Technology and Settlement Pattern Studies
Yellowstone Lake, Wyoming, is an excellent location to study hunter-gatherer lithic technological organization in prehistory. Well-defined lake-access routes, as well as a fairly well understood toolstone universe, facilitate an understanding of human settlement and land-use at the lake. The large size of the lake and its location at an apparent territorial nexus also leads to interesting lithic use and mobility patterns. Lithic data from University of Montana test excavations at sites on the north, east, and south shores of the lake reveal contrasting travel and lithic use depending on individual point-of-entry to the lake shore. The variable lithic production and material-use modes indicate utilization of the lake by individuals with distinctive travel realms and band membership. Our lithic data and analysis partially support Robin Park's recent mobility model in which lake access was directed through 3-4 major thoroughfares used by hunter-gatherers from various regions, rather than one group with an enormous travel range. Lake access and use changed over time as well, with Paleoindians having significantly greater ranges than Early Archaic people and Middle-Late Archaic individuals having increased territorial breadth compared to their Late Prehistoric counterparts.

MacDonald, Douglas H. (University of Montana)
(13) The University of Montana's 2011 Yellowstone Field Season Update
The University of Montana (UM) completed its fifth season of archaeological fieldwork in the Greater Yellowstone Ecosystem (GYE) in 2011. UM conducted multiple National Register evaluations at a variety of locations, resulting in a broader understanding of the chronology, settlement, and subsistence of prehistoric Native Americans in the GYE. UM teamed with Gallatin National Forest on the Little Trail Creek excavations north of Gardiner, Montana. UM also teamed with Yellowstone National Park on projects at the Gardiner North Entrance Station, Appollinaris Springs, and Yellowstone Lake. UM evaluated more than 40 sites on the eastern and southern shores of the lake, with preliminary results providing new information on use of the GYE during the last 10,000 years. UM's 2012 field season will focus on completing evaluations of sites on the lake's south and southeast arms.

McBeth, Sally (University of Northern Colorado)

(5) The dilemma of a cultural anthropologist: writing an ethnographic overview of dispossessed Ancestral Homelands; the case of the Northern Ute of Colorado and Utah

Whenever a tribal community is dispossessed of their territory and removed to a distant location, much traditional knowledge is lost. In 1881 the Northern Ute bands were removed from their western Colorado homelands to a reservation in Utah; subsequently assimilationist institutions such as boarding schools and missions, and accommodation to twentieth and twenty-first century culture, caused tremendous cultural erasure. From 2006 to 2010, I worked on an Ethnographic Overview of NPS's Colorado National Monument through a Rocky Mountains CESU agreement. While I was successful in initiating projects to work with the Northern Ute to reclaim not only knowledge about their lost land base but also to establish reconnections to ancestral homelands, I was less successful in convincing some Park personnel, who had unrealistic expectations on what the final project should include, on the holistic value of the project. Whenever a people are disenfranchised of their homelands, their sacred landscape, all of their reflections must be interpreted in light of this removal. The problems that arise when a tribe's relationship with homelands is severed will be discussed in this presentation, especially as they relate to collaboration with tribes, the successful completion of the report writing, and maintaining an ethnographic integrity.

McElroy, Andrew (University of Montana)

(10) Projectile Point Analysis of the Sarpy Bison Kill

In 2010 and 2011 archaeological excavations were conducted at the Sarpy Bison Kill site located in southeastern Montana or better known as site 24BH3078. The site is a bison communal hunting site located in a drainage that leads to sandstone wall outcropping, were the bison were killed and processed for meat, hides, and bone marrow. The site is dated to 1980±40BP or roughly 50 BC to 90 AD. The excavations at the site were conducted as a cultural resource management for the excavation of the underlying coal by a local coal company. A preliminary analysis was performed on the projectile points found at the Sarpy Bison Kill in 2010 field season to determine the use-life of a projectile point used in such a hunting process. The projectile points found at this site indicate in some detail the use-life of a projectile point from accruing material from both local and far of sources, manufacturing, use, recycle/rejuvenation, and finally disposal. This analysis gives a great glimpse into communal bison herd hunting and from these tools shows a fingerprint on how these types of tools and hunts both worked and played into the plains lifestyle.

McIntyre, Jordan C. (University of Montana)
(13) It Comes Down to Nodules: Park Point Obsidian
This paper examines the formation and petrologic properties of a previously unidentified source of obsidian nodules eroding from the Lava Creek tuff formation on the eastern flanks of Yellowstone Lake. Over the past 2.1 million years the Yellowstone region has been reshaped and reformed by three cataclysmic volcanic eruptions each of which were followed by massive eruptions of both rhyolitic and basaltic lava flows. The Lava Creek tuff eruption was the last major eruption to have occurred over 640,000 years ago and has shaped the Yellowstone region as we see it today. Due to the volcanic nature of the Yellowstone region, it has provided a diverse suite of volcogenic lithic raw material source locations for hunter-gatherers since the end of the Late-Pleistocene. These materials range from amorphous obsidians to siliceous lithoclasts such as quartzites, cherts and other quartz bearing lithic materials. For decades researchers have grappled with the exact whereabouts of the Park Point source when all along it was beneath their feet as eroded nodules rather than visions of showcase slabs of glistening black glass. Yet, however modest these cobble size nodules may be, they still served as an important lithic raw material source for hunter-gatherers.

McNamara, Britt (Utah State University)
(9) Another Door into Southeastern Idaho's Paleoindian Past: Learning from a Citizen Collector
Archaeologists often encounter enthusiastic artifact collectors, some of whom have amassed hundreds or thousands of artifacts over a lifetime. While some dismiss collectors and private collections as data sources for a variety of reasons, many others have reaped significant benefits by working with citizen collectors. This poster shares Utah State University archaeologists' experiences working with an 80-something year-old individual from southeastern Idaho and his collection of dozens of well-provenienced Paleoindian and later projectile points as a case study illustrating the challenges and rewards of working with collectors. I particularly examine the kinds of research questions citizen collectors can help archaeologists answer (often to the exclusion of any other data source), and the ethics of working with them.

Mahoney, Nancy (Montana State University)
(2) Collectors and Collecting: An Investigation of the Joseph L. Cramer and Oscar T. Lewis Archaeological Collection at the Museum of the Rockies.
This paper summarizes preliminary investigations of the archaeological collections of Joseph L. Cramer and Oscar T. Lewis (1887-1963) housed at the Museum of the Rockies, in Bozeman, Montana. The collection contains

archaeological materials from Montana and Wyoming that were made during the first half of the 20th century, all of which have been detailed by Mr. Cramer in a massive, handwritten ledger. As a whole, the collection contains artifacts and documentation from some of most significant archaeological sites in Montana, including Pictograph Cave, the Hagen Site and the Billings Bison Trap Site, as well as places of significance to the Crow Nation. The Cramer/Lewis collection analyzed as a historical case-study on the relationship of collecting and avocational archaeology to the development of professional archaeology in Montana.

Martin, Houston L.

(6) Preliminary investigation of morphological variation in Pleistocene Bighorn Sheep dung at Last Canyon Cave

Measurement data were collected on fecal material believed to represent Bighorn sheep found in late Pleistocene sediment and examined using a variety of statistical methods. Significant differences existed between the sample and the coprolites of extant bighorn sheep and when compared to the metric data for distinct species, it is apparent that the fecal assemblage may be more diverse than originally proposed. Further, the fecal material demonstrates change through time that may be attributed to various factors. These include change in environmental conditions, taphonomic processes and bias, herd structure, and other possible causes. In order to better understand these differences, further research is needed that investigates the natural history of the site.

MeDrano, Jonathon A. (University of Chicago)

(3) "Nin Kinigawabimin-Niiso-Icicahiya/Cultural Amalgamization" The Transformation and Expression of Spirituality and Identity in the Native American Urban Context

Native American communities rank particularly low on nearly all standardized quality of life measurements. To address these disparities, Chicago's Native American community is attempting to revitalize a number of traditional ceremonial customs including rituals, languages, and artistry skills. These practices had all but disappeared as a consequence of forced education and assimilation policies driven by Federal Indian Boarding Schools and Federal Termination and Relocation Programs. The focus of this paper is to explore the cultural and psychological consequences of some of these revitalization efforts. Through a combination of qualitative interviewing and participant observation methodologies, this paper documents the personal and collective features of an urban Native American revitalization movement. In-depth analysis of participant narratives provides insight into the processes involved

in the manifestation of spirituality and identity, as the Native American community struggles to reinvent and embed traditions.

Metcalf, Michael D. (Metcalf Archaeological Consultants, Inc. and the Center for Mountain and Plains Archaeology, Colorado State University)
(11) Rethinking the Northern Colorado River Basin Archaic
One of the major research goals in archaeological treatment plans for several recently constructed natural gas pipelines was an evaluation of the broadly defined archaic periods for Archaic Era in the Colorado prehistoric context for the Northern Colorado River Basin. Excavation data from more than 30 sites in northwestern Colorado and southern Wyoming, as well as detailed studies of site stratigraphies, and newly developed proxy data on paleoclimates, allow reconsideration of the Archaic sequence and highlight the importance of developing detailed local sequences as data allow. Data about diet, mobility, and housing are sufficiently detailed to suggest a minimum of six adaptive shifts between about 8500 BP and 1800 BP. While all of the technological elements of the general Archaic lifeway were in place by at least as early as 7200 BP, and most, if not all of the important foods were known, climatically driven shifts in relative abundance of plants and animals necessitated periodic shifts in the relative reliance on small mammals, medium and large artiodactyls, and plant foods. Each of the six "adaptive periods" has unique characteristics with subtly different mixes of dominant economic species being utilized.

Millonig, Sarah M. (Colorado State University, Center for Mountain and Plains Archaeology)
(12) Hogback Surfers: A Synchronic Test of Transhumance Mobility Patterns at the Fossil Creek Site in Northern Colorado
Benedict's (1992) models of Seasonal Transhumance Mobility argue that the identification of lithic sources from Northern Colorado assemblages can be used to trace human movement between high elevation basins or "parks" and the foothills and eastern plains. The Up-Down and Rotary systems are used to describe these migratory patterns. These systems have been tested at high altitude sites and ample evidence supports utilization of the mountainous regions of the state during the Early Ceramic period. However, little lithic evidence has been presented regarding this period at lower elevations, linking the interaction between the mountains and the eastern plains. The Fossil Creek case study applies this broad scale model to a single dataset to indicate whether these mobility models were employed during the Early Ceramic. This Plains Woodland site is nestled along the corridor between the foothills and eastern plains and therefore serves as a means to test these models of mobility at a lower elevation. During the summer of 2011, Colorado

State University's field school recovered over 60 projectile points from the Fossil Creek locality. A visual macroscopic analysis was applied to the projectile points using the comparative lithic collection provided by the Center for Mountain and Plains Archaeology. Each projectile point was subjected to a variety of visual macroscopic analyses in addition to the comparative observations. Methods include ultraviolet fluorescence, identification of cleavage properties and mineral composition, as well as grain-size and texture classifications.

Morgan, Brooke M. (Southern Methodist University), **Brian N. Andrews** (Rogers State University), and **David J. Meltzer** (Southern Methodist University)
(7) Investigating a Folsom Structure at Block C of the Mountaineer Site
The Mountaineer site is a shallow Folsom residential site located on a mesa outside Gunnison, CO, with evidence of multiple house structures. Initial investigations by Western State College (2004, 2005) were continued by Southern Methodist University (2009, 2010, 2011). A 130 m2 area in Block C was excavated down to bedrock, uncovering a house structure and high concentration of Folsom tools, waste flakes, burned daub, and bone (including a Bison antiquus longbone fragment dated to 10,440 ± 40 BP). A single hearth and three natural tree throw features were also discovered. Examination of modern day tree throws supports the interpretation that the tree throws occurred post-abandonment during wildfires and moved rocks and artifacts in the process. Since the site is situated on near surface bedrock, protocol was developed for photographing, measuring, and mapping all rocks >10 cm in maximum dimension, with the expectation that the largest rocks (≥40 cm) should form a non-random alignment. Our spatial analyses indicate the largest rocks form a roughly circular outline with an elongated entryway facing southeast. Spatial distribution of flaked stone, daub, and bone is consistent with the proposed dwelling area.

Morgan, Christopher (Utah State University)
(4) Recent Results of Utah State University's Continuing Investigations of High-Altitude Adaptations at High Rise Village, in Wyoming's Wind River Range
This paper presents results of ongoing analyses from Utah State University's 2010 and 2011 field investigations at High-Rise Village, currently the largest and oldest known high-elevation village in North America. Results hinge on dating, with fourteen radiocarbon dates indicate site occupation between 4500 and 130 calBP, with a pronounced signal 1800 – 500 calBP. These data result in a number of intriguing questions regarding why the site was occupied so intensively and for so long, in particular whether mid-Holocene and medieval warming encouraged site occupation and whether apparently

long-term adaptive continuity is consistent with Late Prehistoric Numic expansion in the region.

Nash, Robert B. (University of California, Davis)
(7) Tactical Hunting Model for Fremont Groups in the Northeastern Uinta Mountains of Utah
Archaeological data from the Red Canyon region of the northeastern Uinta Mountains of Utah indicates an increase in large game hunting from the Late Archaic to the Formative period. Late Archaic and Fremont groups appear to have planned upland occupation of the Uinta Mountains during times that would maximize hunting returns, and employed tactics to this end. First roots, then maize, were used as predictable resources that not only provided caloric supplement to groups, but also reduced the risk of seasonal hunting in the Uinta Mountain uplands. The Tactical Hunting Model presented here suggests the shift from upland root processing to upland maize storage was a conscious change in tactics executed in order to increase access to high-ranked large mammals, thereby increasing foraging efficiency. The adoption of maize, and the subsequent in situ development of the Red Canyon Fremont culture, was therefore not a consequence of the caloric value of maize horticulture in the face of diminishing foraging returns and diet breadth expansion, but was rather about the storability and transportability of maize, and its realized potential as a tactical means of prolonging access to large game within an established hunter-gatherer economy.

Naudinot , Nicolas (University of Wyoming and University of Nice, France), **Mary Lou Larson & Marcel Kornfeld** (University of Wyoming)
(8) Hell Gap III: Application of Multiple Analytical Methods to Chipped Stone Assemblage
The analysis of chipped stone tools and the debris from their manufacture is one of the primary means that archaeologists studying pre-metal, pre-agricultural societies have to understand past human behavior. We investigate and compare two methods of high resolution chipped stone analysis: Minimum Analytical Nodule Analysis (MANA) and chaîne opératoire . While we have employed MANA in investigating other Hell Gap assemblages the addition of chaîne opératoire and in particularly core scar patterns sheds new light on Paleoindian chipped stone production strategies. We also discuss the joining of MANA to the chaîne opératoire methods for gaining a better understanding of chipped stone technology as well as its implication for forager mobility. We consider the applicability of the two approaches in a comparison of the Hell Gap and Agate Basin components from Locality III of the Hell Gap site, Wyoming.

Newton, Cody (University of Colorado)

(2) The Little Snake River Post-Contact Project: Preliminary Results from the Survey and Testing of Early to Middle Nineteenth Century Indigenous Campsites in Southern Wyoming

This poster presents the preliminary results from the survey and limited testing of five post-contact Indian campsites located in the Little Snake River drainage of extreme southern Wyoming. All of the sites have characteristics, including architectural features and trade items, consistent with an early to middle nineteenth century occupation corresponding with the Fur Trade Era. The results of this analysis provide insight into subsistence, as well as initial data for discerning the identity of the Indian occupants of the camps and some of the factors that may have influenced the campsite location. In particular, whether or not the location and timing of the occupation(s) is a product of the south to north horse trade between the Ute and/or Comanche and the Shoshone.

Ostahowski, Brian E. and **Robert L. Kelly** (both, University of Wyoming)

(8) Alm Rockshelter Lithic Debitage Analysis: Implications for Hunter Gatherer Mobility Strategies in the Big Horn Mountains, Wyoming

Alm rockshelter is a prehistoric site located at the mouth of Paintrock Canyon, on the western side of the Big Horn Mountains. The site contains a well-stratified record of occupation from late Paleoindian to late Prehistoric times. This study analyzed lithic debitage excavated at Alm rockshelter's three units to test implications of the hypothesis (Surovell et al 2009) that the Big Horn Basin region experienced population growth and decline during certain time intervals which correlate with decreasing and increasing aridity. Debitage analysis tests the hypotheses that (a) when the region experienced an increased population (associated with cooler/wetter climate), prehistoric peoples used Alm rockshelter through residential mobility; and (b) at times of decreased population (drier/warmer climate), people used the shelter through logistical mobility.

Owens, Andrew E.

(12) Penetrating Taphonomic Variables: A Study of Pinyon Juniper Tree Falls as they pertain to Site Taphonomy

Site deposition and taphonomy are major focuses in Archaeology and contain a great many variables. In order to gain a larger taphonomic perspective, an effort must be made to define, isolate, record, evaluate, interpret, and discuss such variables. Tree falls are a specific environmental variable either accurately interpreted, misinterpreted, overlooked, or left unaccounted for in the recording of many Archaeological sites. They present a unique opportunity, however, for scientist to witness and examine past processes

under present conditions. A study was designed, intended to isolate, record, and interpret the taphonomic processes involved in Pinon and Juniper tree falls, a species dominant both past and present across much of the Rocky Mountain landscape. This paper provides a background of Pinon and Juniper landscapes, explains the variables and methodologies incorporated in this study, and provides a context for discussions concerning the results.

Packwood, Robert (University of Montana)
(3) The Artist as Spirit Worker: The Forgotten Link between Artistic Creation, Shamanism, Magic, Healing and Sickness
The modern notion of "art" has served to partially conceal the shamanic and magical roots of artistic creation and the purposes such art served within human communities, which included the treatment of the sick and the causing of illness. Some classes of modern artists can be directly linked to the shamans and sorcerers of the distant past, yet because of the modern misapplication and redefinition of the terms "shaman" and "artist", the link between modern artists and shamanic practices has been concealed. If shamanism, magic, and sorcery are to be truly understood in the present it is necessary to create a new categorical definition of the "artistic shaman". Beliefs of shamanic artists offer often unheard and fascinating perspectives on the essential nature of artistic creation and the role of art in human evolution, healing, and sickness.

Park, Robin J. M. (University of Montana/Yellowstone National Park)
(13) The "Other" Stones: Recent Efforts to Record and Interpret Stone Arrangements and Structures in Yellowstone.
Stone arrangements and structures occur throughout Yellowstone National Park, yet are often not analyzed as thoroughly as other site types (with the exception of tipi ring circles). The function of hunting blinds and pits is easily interpreted, but we typically shy away from assigning dates to these structures beyond the general assumption of "later" use. Still other stone features are considered too problematic to date and interpret, and are often left as interesting but elusive question marks in the site files. These "other" types of stone arrangements include cairns, non-habitation stone circles and arrangements, and vision quest structures. Recently, the Yellowstone archaeology office has undertaken preliminary reconnaissance of high altitude stone feature sites in remote parts of the park, and has actively sought to better interpret and record these sites using lichenography, ethnographic information from associated tribes, and the examples from similar studies in Glacier National Park. This preliminary research has shown the importance of reconnaissance of certain high probability areas, specifically for the discovery of vision quest sites. It has also shown us that these "other" stone

arrangement sites are more numerous than previously thought, and may be more accurately interpreted using lichenography and other means.

Pelton, Spencer (Center for Mountain and Plains Archaeology, Colorado State University)
(11) Putting Ground Stone Tools Under the Microscope
The widespread distribution of ground stone artifacts found in high altitude archaeological contexts in the Colorado Front Range suggests that the stone tools were central to prehistoric subsistence practices in the region, a notion further compounded by the investment required to transport the often cumbersome tools from their place of origin in the hogback foothills to the alpine tundra. By studying the distribution of ground stone throughout the Front Range, its location relative to the natural landscape, its morphological attributes, and the results of phytolith, starch, and pollen analyses, the nature of its use and importance as an artifact class in the Colorado high country may be more clearly discerned. To this end, the ground stone assemblage from the Rollins Pass study area, along the Continental Divide west of Boulder, CO, is analyzed in relation to phytolith, starch, and pollen analyses conducted on a sample of ground stone tools from 5BL121, an archaeological site located at close to 12,000 feet above sea level and adjacent to the Olson game drive site. The analysis is then framed in relation to James Benedict's model of seasonal transhumance for the region.

Peterson, Marcia L. (Cardno ENTRIX)
(7) The Crooks Gap Housepit Site: A Multicomponent Early Opal Phase Housepit and Late Opal Phase/Great Divide Phase Open Camp Site on the Sweetwater Arch, Crooks Gap, Wyoming
The Crooks Gap Housepit Site (Site 48FR6260) is a multicomponent prehistoric site located on the Sweetwater Arch approximately 10 miles south of the Sweetwater River near Crooks Gap, Wyoming. The lower component is a palimpsest that includes Early Archaic period early Opal phase and Great Divide features. The early Opal phase features consist of three housepits with 25 interior features, a generalized stain with a cluster of eight features, two roasting pits, 12 stained basins, three heat-altered rock scatters, one heat-altered rock filled basin, and one postmold. Those features date to between 5,460 and 5,130 years BP. The Great Divide phase assemblage consists of one stained basin that dates to 8,010 ± 50 years BP and two terminal Paleoindian-style projectile point fragments. The upper component dates to the late Opal phase between 3,730 and 3,640 years BP. It includes a rock filled basin and two stained basins. This paper will summarize the cultural material recovered from Site 48FR6260 and compare the early and late Opal phase occupations at

the site. It will also compare Site 48FR6260 to other housepit and non-housepit Great Divide and early to late Opal phase sites in the same general area.

Pitblado, Bonnie (Utah State University)
(11) Caribou Lake, Devil's Thumb, and So Much More: Thank You, Jim Benedict, Man of the Shining Mountains
One hot day in the early 1990s in Tucson, Arizona, I steeled my nerve, picked up the phone, and called my intellectual hero, Dr. James Benedict, to see if he might be willing to talk about Rocky Mountain archaeology. Jim, of course, immediately soothed my nerves, and we proceeded to talk at length about the subject. One thing led to another, and I soon found myself high in Jim's mountains, learning from him how to do archaeological field work in such a fragile, spiritually fulfilling place. A decade later, I found myself on a boat in Reid Inlet, Glacier Bay, Alaska with Jim and his wife Audrey, proud to have them serve as witnesses when the captain of our vessel performed a ceremony marrying me to the love of my life. In my paper, I will reminisce a bit about the lessons Jim taught me about archaeology and about living—they were equally profound. I will also revisit the Caribou Lake site, a very high altitude late Paleoindian site Jim excavated in the 1970s and encouraged me to re-examine in the mid-1990s. I will evaluate the site in light of all I've learned about Rocky Mountain Paleoindians since those excavations. And, as I talk about Caribou Lake, I will emphasize the role that Jim's thinking played in the evolution of my own. I hope when I close that all present will understand that Jim is as much a hero to me today as he was back in those earliest days of my graduate career; in fact, much more so. I miss his presence terribly.

Pool, Kelly J. and **Jennifer B. Lee** (both, Metcalf Archaeological Consultants)
(7) Living at Larson: a Shoshonean Antelope Processing and Camp Site on Dry Muddy Creek, Lincoln County, Wyoming
In fall 2010 and summer 2011, Metcalf Archaeological Consultants, Inc. conducted data recovery excavations on the Wyoming portion of the Ruby Pipeline in Lincoln and Uinta counties. Five sites were excavated, ranging in age from a 6700 RCYBP Archaic Great Divide component at site 48LN4114 to a 120 RCYBP Protohistoric component at the Larson Site (48LN2041). Typical of many such sites in the region, the four overlapping radiocarbon assays from Larson are all Protohistoric in age, but no historic or European trade goods were identified during excavation or by a metal detector survey. Both faunal processing and camping activities are represented in the Larson assemblage. Tri-notched points, Shoshonean knives, and flat-bottomed Intermountain ware ceramics are all present. Obsidian sourcing identified the majority of tested artifacts to Malad, Idaho. Cursory examination of the faunal remains indicates

pronghorn was heavily processed, and at least three beaver, including several specimens with cut marks, were also identified. Bone ornaments include two tooth pendants, and evidence of groove-and-snap bead manufacture is present on several jackrabbit metatarsals. Data from the Larson Site will contribute to our understanding of the latest prehistoric use of the Green River Basin.

Prentiss, Anna M. (University of Montana), **James C. Chatters** (Applied Paleoscience), **Randall R. Skelton** and **Matthew Walsh** (University of Montana)

(8) Evolution and Organization: Phylogenetic Analysis of Ancient Core Reduction Systems

This paper concerns the evolution of lithic technological organization during the terminal Pleistocene and early Holocene in Beringia and the greater Northwest region of North America. To accomplish this we first recognize that technological decision-making was driven not just by the need to solve immediate ecological problems but also by the application of a repertoire of principles learned or inherited from earlier generations. In this study we test opposing macroevolutionary hypotheses about technological evolution in the Old Cordilleran tradition (OCt) by taking the focus off the shapes of individual artifacts and examining assemblages of artifacts as markers of evolutionary change in the logic of reduction systems. We make use of cladistic and network approaches to hypothesis testing and develop a number of implications from the results.

Reckin, Rachel (US Forest Service), **Ira Matt** (Confederated Salish Kootenai Tribes), **Robert Kelly** (University of Wyoming), **Craig Lee** (Montana State University), **Marcia Pablo** (US Forest Service), and **Pei-Lin Yu** (RM-CESU)

(5) Alpine snow and ice as a source of archaeological and paleoecological data in Glacier National Park

In recent years, ice in mountainous areas from all over the world has begun to melt at increasing rates due to global climate change. In association with this trend, researchers have found significant quantities of preserved archaeological material melting from kinetically-stable alpine and sub-alpine "ice patches." These artifacts include organic and lithic hunting technology, butchered animal remains, and even items of clothing. Non-cultural paleobiological materials, including plant and animal material, have also been found and used to study paleoenvironments and ecosystems. Ice patch discoveries offer important and rare insights into high-altitude paleoecology, Native American use of these environments, and the organic components of prehistoric technology and subsistence. In this presentation, we will highlight a multiyear ice patch study in Glacier National Park, which involves the

Confederated Salish Kootenai Tribes, the Blackfeet Nation, the University of Wyoming, and the University of Colorado. In particular, we will focus on preliminary results from our first season of fieldwork and the unusually collaborative nature of the project.

Root, Matthew J. and **Daryl E. Ferguson** (both, Rain Shadow Research Inc.) Steve W. Lucas (Nez Perce National Forest)
(8) Ne' hu-lat-pu: The Organization of Nez Perce Lithic Technology on the Bitterroot-Clearwater Frontier
In June 1891, Kew-kew'-lu-yah, a Nez Perce elder, drew a map showing the locations of 78 late eighteenth century Nez Perce villages. He identified one village along the right bank of the Selway River named Ne'hu-lat-pu, which was considered to be the oldest Nez Perce village. Recent excavations at Ne'hu-lat-pu indicate that occupations date from the Late Cascade though Kooskia phases. AMS radiocarbon ages from the village occupations range from the late thirteenth through eighteenth centuries. Far up the Selway, the effective temperature (ET) at Ne'hu-lat-pu is 12.46 °C, whereas villages on the lower Clearwater have ETs ranging from 13.2 °C to 13.6 °C. Decreasing ET corresponds to increased logistical organization. The Ne'hu-lat-pu village occupations are dominated by projectile points, though a few tools represent maintenance tasks and food processing. Exotic toolstones include orthoquartzite, Mississippian and fossiliferous chert, and Bear Gulch obsidian from sources to the east across the Bitterroot divide in buffalo country. The stone tools and flakes from Ne'hu-lat-pu reflect extreme curation. There is abundant evidence for long-distance transport and maintenance. Data from limited excavations support the idea that the Nez Perce at Ne'hu-lat-pu used logistical strategies and a highly curated strategy of lithic technology.

Root, Matthew J, and **Daryl E. Ferguson** (both, Rainshadow Research, Inc.), **Steve W. Lucas** (Nez Perce National Forest) and **Linda Scott Cummings** (PaleoResearch Institute Inc.)
(4) People of the Sal-wah: Nez Perce Settlement at Ne' hu-lat-pu village on the Upper Selway River
Ne'hu-lat-pu village lies on the upper Selway River at an elevation of 765 m, 82 river km upstream from the Selway's confluence with the Lochsa. The Nez Perce elder Kew-kew'-lu-yah identified Ne'hu-lat-pu as part of the Sal-wah'-poo village group, meaning "People of the Sal-wah." In 2008 and 2009, we conducted limited excavations to assess damage to the site caused by Selway River floods. Investigations along the eroding river bank revealed Late Cascade though Kooskia phase occupations. Radiocarbon ages from upper, village occupations range from the late thirteenth to eighteenth centuries. Organic residue from an Intermountain Ware rim sherd produced an AMS

radiocarbon age of Cal AD 1300-1370 and Cal AD 1380-1420 (580 ± 25 14C years B.P. - PRI-10-69-1). Excavations revealed FCR-filled roasting pits, a stone tool collection dominated by arrow points, and exotic toolstones from sources to the east across the Bitterroot Divide in buffalo country. Analysis of organic residues adhering to the inside of the rim sherd indicates that a flint variety of maize, possibly a popcorn variety, was stored or cooked in the vessel. Faunal remains include mountain sheep, deer, large cervids, bird, and small mammals. Excavations indicate that the Nez Perce at Ne'hu-lat-pu had regular travel to, or trade with people in the Bitterroot Valley far into precontact times.

Schroeder, Bryon (University of Montana)
(11) Will you know my Name? Jim Benedicts' Influence in a new Generation of Alpine Archaeologists
I personally never met Dr. Jim Benedict, but I am a member of a new generation of alpine archaeologists indirectly inspired by his pioneering alpine work. His influence to get his peers and ultimately their students into the Rocky Mountains has been the impetus for some exciting new discoveries at the alpine ecotone. I wish to honor his legacy of exploration in the Rocky Mountains by briefly highlighting some of the ongoing research taking place in the Wind River Range of Wyoming. It is my goal to illustrate, as I think Jim did, the importance of understanding the role the mountains played in prehistoric people's lives, and ultimately our understanding of those people.

Schwitters, Amee (University of Montana)
(10) The Last Best Place? Same-Sex Sexual Identity Formation in Montana
Despite stories of gay men fleeing rural, conservative areas for larger, more accepting cities, not all have chosen to leave. Some have chosen to quietly maintain their identity, modifying their sexual schemata in response to the desire to stay within the rural cultural environment. In this environment, where it is still possible to hear the terms gay or queer being used as insults, rather than identities, the motivation to modify personal schemas, for example, keeping one's sexual identity hidden, can be a daily persistence. Men report controlling when and how to be visibly gay is a means of survival in rural areas (Boulden 2001; Green 2006). Down low men who have sex with men remain a hidden subset of the population, often forced to hide their identity in response to social pressures, yet the process of identity formation among rural down low MSM remains largely unknown among anthropological researchers. Influenced by schema and queer theories, the current study investigated the role of the rural environment in shaping men's decisions to remain on the down low about their same-sex sexual activity and the impact of that decision on their larger identities.

Shy, Sarah and **Katie Conrad** (both, Utah State University)
(9) What the H@#$ is this Place??!!!
For archaeology field school students, nearly every site reveals something new and different about the past. However, we encountered a site during Utah State University's summer 2011 archaeological field school survey in the Soda Hills of southeastern Idaho that stumped even the team leaders. The site in question sat in a small valley surrounded by hills, mountains and farmland. The historic-era site includes a productive spring, remnants of cinder block structures, and heavy-duty equipment. Artifacts include household items dating to the 1950-80s, together with numerous objects related to the economic activity practiced there. The industrial equipment consisted of a very large saw, conveyor belt, water trough, and numerous pieces of metal. We also noted a sluice system, latrine, drainage ditch, and a well. Given the diversity and nature of the features and artifacts, we entertained all sorts of hypotheses regarding site function, among them phosphate mining, farming, logging, and even cannabis cultivation! This site presented a mystery that we could and would solve. So we interviewed members of the community, researched land ownership records, and searched the historic references in the Soda Springs library. We learned that the land was owned by a well-known family in the Soda Springs area. They used their land for potato, grain, and hay farming as well as for cattle and sheep grazing. Most of equipment we observed was part of the suite of equipment used for hay bailing. Our poster illustrates our finds and places the activities reconstructed into the broader context of an evolving rural Idaho economy.

Stone, Vickie (Colorado State University)
(2) Reconstructing the Flintknapper: Exploring Drop Zones as an Indicator of Body Positioning
The Benedict's Rock site (5BL232) is a single component Late Paleoindian Scottsbluff site in the montane environment of the Southern Rocky Mountains southwest of Lyons, Colorado. The site is composed of a single rock feature similar to a chair, with flakes distributed in a semi-circular fashion around its base. Using flake distributions as gathered from excavation of Benedict's Rock, I test if there is a pattern indicating the body position of the prehistoric flintknapper. My methods include experimental flintknapping in a variety of positions: sitting, standing, leaning. I observe the quantity and distribution of flakes across the "drop zone" produced by different body positions. I compare these results to the distribution at Benedict's Rock in order to determine if a body position can be discerned. Also, attention to geologic processes in the possible disturbance of flake distribution at Benedict's Rock is also considered. The significance of determining a body position develops

a strategy for isolating individuals in the archaeological record, which are generally invisible in the majority of archaeological sites.

Storm, Brian and **Byron Loosle** (BLM Utah)
(7) Changes in Prehistoric Mobility and Caching Practices in the Uinta Mountains of Northeastern Utah
42Da1392, the Red Hand Site, is a moderate sized rockshelter situated at an elevation of 7380 feet near Red Canyon on the north slope of the Uinta Mountains. A damage assessment report completed as part of a law enforcement investigation permitted some data recovery at this unique and surprising site. Initially thought to be a typical Formative logistical cache location, the investigation instead revealed a substantial Archaic occupation. The location was used during the Early Archaic as a short-term residential camp, then for food processing and storage during the Late Archaic and later reused during the early Fremont period as a logistical camp.

Surovell, Todd A. and **Nicole M. Waguespack** (both, University of Wyoming)
(8) The Use of Interior and Exterior Spaces at Barger Gulch Locality B, a Folsom Campsite in Middle Park, Colorado
Barger Gulch Locality B is a Folsom winter campsite in Middle Park, Colorado. Using relative burning frequencies, artifact density, artifact size, and microtopography of the occupation surface in three excavation blocks, we have identified the presence of structures. In this paper, we examine variation in the production and discard of stone tools in interior and exterior spaces. Specifically, we explore variation in artifact density, size, and type, lithic raw material, and reduction type and stage for interior and exterior areas of the site. We conclude that clear and consistent differences exist in each area concerning the ways that inside and outside spaces were used at the site.

Suzukovich, Eli III (The American Indian Center of Chicago, Inc.)
(3) Keeping the Flame: Traditional Fire Use and Prairie Restoration in an Urban Indian Community
Since 2007, Urban Indian youth at the American Indian Center in Chicago have participated in controlled burns of the Center's medicinal prairie garden and have reconnected to traditional uses of fire in an ecological context. The use of fire on prairie restoration sites managed by the American Indian Center's Education Department (Urban Ecology Program) has evolved over a four year period from its' humble beginnings with a small propane torch (and avoiding the fire department), to gaining the support of the local alderman's office, to consulting with State agencies. Moreover, the use of fire has reintroduced Chicago area Native youth to tribal land management practices

and traditional relationships to plants, animals, and landscapes in and around Chicago. This paper will present some background on the relationship between controlled burns and how the AIC Education Department approaches prairie ecosystem restoration and cultural maintenance. The paper will also explore the effects of youth participation on the perspectives of older community members and the maintenance of tribal ecological traditions in an urban context.

Suzukovich, Eli III (The American Indian Center of Chicago, Inc.)
(3) "You'll figure it out as you go:" An Inter-generational Perspective of Tribal identity and Spirituality within the Chicago American Indian Community
For members of the Chicago American Indian community, tribal identity and spirituality exist on deep cultural and family levels. A sense of tribal identity and spirituality however, are not hard-wired into one's psyche, but have to develop over time. Both need to be informed from older family and community members and life experience. The later is most important in terms of finding meaning and relevance to an individual and their tribal and family traditions, and to developing a spiritual identity that connects to family, tribe, community, and self. This paper will examine the relationship between the development of spirituality and tribal identity from a multi-aged perspective as it occurs over time. Ultimately, what becomes visible is the evolution of self, family, tribal, and community identities, through the life experiences of community members from different tribes and spiritual traditions. The data for this presentation is part of a dissertation that focuses on spirituality and tribal identity within the Chicago American Indian Community.

Thompson, A. Kvale and **Nicole Branton** (both, Arapaho and Roosevelt National Forests, Pawnee National Grasslands)
(4) Riding the Ties: The influence of embedded stream networks on the Tie Hack Industry
During the early 1900s the mountains of the Laramie River Valley was home to hundreds of tie hacks who carved out small Scandinavian logging camp enclaves while logging railroad ties in the dense lodgepole of the National Forests. These tie hacks, who worked primarily for the Otto Lumber Company, were responsible for feeding the rivers of Colorado and Wyoming with the railroad ties necessary to construct railroad tracks through large portions of Colorado, Wyoming, and the Great Plains. To do this, the tie hacks utilized a large scale transportation network that was already embedded within these mountains. Stream channels served as roads, fuel sources, and life blood to this industry. These natural networks proved to be crucial to the tie hacking of this region. Rather than relying on historic technologies to alter this environment, the industry and technologies were modified to work with

an existing natural system. At the head of this network is the Stuck Creek Dam, which accumulated snow melt each winter in order to drive the ties from the mountains to the Laramie River Valley each spring. Much of this industry centered around the timing of this event. This large sluice dam is an example of how the environment surrounding the Tie Hack activity influenced many of the practices crucial to that industry.

Thompson, A. Kvale and **Lawrence C. Todd** (Colorado State University)
(4) Dead Trees Do Tell Tales: Investigations into the role of fires on the archaeological site location in the Upper Piney Creek Drainage of the Greater Yellowstone Ecosystem
The location of an archaeological site is dependent on three conditions. One: that people in the past left something behind; two: that those materials are preserved in a reasonable context, and; three: that location is observed and documented by a modern researcher. Past fires would have impacted local resource availability and caused changes to local and regional geomorphologic processes (conditions one and two). Modern fires substantially increase the efficacy of the discovery and surface documentation of this material (condition three). During the summer of 2006, a large stand replacing fire, the Little Venus Fire (LVF), burned 14,164 ha acres of the Greybull River Drainage in Northwestern Wyoming. Under the burn were hundreds of archaeological sites that were recorded before the LVF burned. After the fire, the vast majority of those sites revealed a wealth of new cultural material that even added an undocumented Protohistoric record to this region. Also, many of the trees in this drainage showed evidence of past fires. Over 300 trees were sampled to construct a fire history for the Upper Piney Creek Drainage in the Shoshone National Forest of Northwestern Wyoming. This research examines the role fires played in contemporary archaeology as well as in activities of the past humans.

Tornow, Matthew A. (St. Cloud State University and University of Montana) and **Tafline C. Arbor** (Des Moines University)
(4) Late Eocene primates of northwestern Nebraska and the decline of primates in North America
The earliest definitive members of the order Primates first appear in the North American fossil record at the onset of the Eocene epoch (~57 mya) and rapidly become geographically widespread. In the Rocky Mountain Basin, primates make up a substantial percentage of the mammalian fauna during the early and middle Eocene (~57-42 mya). The late Eocene (~42-34 mya), however, is marked by climatic change and a related decline in primate diversity across North America during which primates are essentially absent from fossiliferous deposits of the Rocky Mountain Basin. Instead, endemic

North American primates survive in more tropical environments west (California), south (Texas), and east (Nebraska) of the Rockies before their eventual North American extinction in the Oligocene (~33 mya).
In this paper, we present our sampling strategies for ongoing paleoprimatological fieldwork in late Eocene (Duchesnean and Chadronian) deposits of the Oglala National Grassland, northwestern Nebraska, preliminary data on overall faunal representation, and preliminary data on some of the youngest currently known endemic North American primates. These data are discussed in the context of late Eocene climatic change, faunal turnover, and primate adaptation during a period of primate decline, expanding our knowledge of this important episode in North American primate evolution.

Troyer, Michael D. (Center for Mountain and Plains Archaeology, Colorado State University)
(11) Hot Mountain Rocks! The effect of altitude on the timing of formal thermal feature variation, northern Colorado, USA
Little attention has been given to the study of formal thermal feature variation – that is, hearth morphology. Here I present recent findings regarding the timing of elaboration in hearth form and the effect of altitude on this pattern in northern Colorado. It will be shown that the transition to rock-inclusive thermal feature designs takes place at an important point prehistorically and the timing of the inclusion of rock in feature design is delayed as one moves to progressively higher elevations. These patterns highlight some interesting questions regarding high-altitude subsistence. Notably, the bulk of features recorded at elevations over 3000 m in Colorado stem exclusively from the work of Jim Benedict and only through his contribution to high-altitude archaeology can we begin to understand how this ecologically unique area was utilized in the past.

Troyer, Michael and **Jason Labelle** (both, Colorado State University)
(1) Recent fieldwork at Bent's Old Fort and Sand Creek Massacre National Historic Sites, Southeastern Colorado
The Center for Mountain and Plains Archaeology at Colorado State University has undertaken, with the assistance of Rocky Mountains Cooperative Ecosystems Studies Unit (RM-CESU) funding, a Phase II testing of four known prehistoric sites and two historic middens at Bent's Old Fort and the Sand Creek Massacre National Historic sites. These areas were tested to delineate the spatial extent and character of the cultural material as well as the chronology of the deposits. In-field analysis were performed to determine site type characteristics, the integrity and significance of the deposits, and to provide management recommendations.

Truesdale, CJ (Bureau of Land Management, Miles City Office)
(4) The Deadman Site: A BLM case study and analysis of a collection involving paleoindian artifacts from Eastern Montana
The Deadman Site is a lithic assemblage of artifacts containing Hell Gap diagnostic artifacts. Fragmented information about testing, recording and monitoring of the site is scattered throughout many field books. Artifacts from the collection at the Billings Curation Center were analyzed in order to establish data about the collection. The analysis included classifiying the debitage into categories (size grading, complete, decortification stage, etc.) to better aid in the understanding of the site and the collection. In addition a macro use-wear analysis was conducted to aid in the interpretation of the collection. Comparative analysis was conducted to see if similar patterns are present within the collection as often seen in other assemblages.

Wagner Jill M. (Coeur d'Alene Tribal Historic Preservation Office)
(3) History and Operation of the Coeur d'Alene Tribal Historic Presentation Office
As of June 1, 2011, there are 118 THPOs and 59 SHPOs. New THPOs are designated each year. SHPO numbers appear to be stagnant. In the West, CRM contractors, government agencies, and historical groups will find themselves working with THPOs at least as often as SHPOs. Like SHPOs, each THPO has a duty to work within Section 106 and Section 110 of the NHPA. Like SHPOs, each THPO office has a unique way of performing that duty. This presentation outlines the history of and practices in place at the Coeur d'Alene Tribe in Idaho. While there is no one-size-fits-all approach to working with THPOs, it is hoped that this presentation will provide useful information to students and professionals in the field who interact with THPOs.

Walker, Danny N. (Wyoming State Archaeologist's Office) and **Jason Bogstie** (University of Wyoming)
(4) A Return to the Fort Laramie Quartermaster Dump: Eighteen Years of Riverbank Erosion
Archaeological investigations at the Fort Laramie Quartermaster Dump were first conducted in 1994. Those investigations revealed a wealth of data were present in the deposits, including the potential for examination of social group activities by inhabitants of the fort. Since 1994, four episodes of high water on the Laramie River spring run-off has resulted in loss of up to 30 meters of cultural deposits in some areas of the dump, with most of this loss in 2010. A geophysical survey in 2011 revealed, even with this 30 meter loss, extensive cultural deposits are still preserved. Recommendations for future investigations are being prepared.

Welker, Martin and **Jason Patten** (both, Utah State University)
(9) Tasting the Trail: The Influence of Economically Important Plants on Shoshone Mobility Patterns
Our research details eight economically important plant species that shaped the seasonal round of the Northwest Shoshone Band. Using historical and ethnographic data, we have identified Indian potato, yampa, camas, serviceberry, choke cherry, pine nuts, cattails, and seed crops as having played particularly integral roles in shaping the seasonal round of the Shoshone. Due to the geographical distribution and seasonal variability of these plant resources, Shoshone mobility patterns were clearly linked to three interconnected landscapes: the lowlands of the Snake River plain and western Wyoming, the rugged high country of the Rocky Mountains, and the pinion/juniper zone of western Utah and northern Nevada. In the spring, the Shoshone left winter camps in the lowland valleys or pinion-juniper zone to follow river corridors utilizing cattails and other riparian resources on their way to upland/mountainous regions for the summer. During the summer season, folks collected Indian potato, followed by camas, chokecherry, and serviceberry. In the autumn the Shoshone assessed the pinion harvest and traveled to winter camps in either the pinion/juniper zone or the lowland valleys where they harvested seeds for winter. As important as it is to understand Shoshone mobility for its own sake, we also hope to use the information we gather, coupled with reconstructions of prehistoric ranges of the same eight (and likely additional and/or alternative) economically important plant species, to develop hypotheses as to where we might profitably search for archaeological sites dating back earlier in prehistory, possibly as far as the terminal Pleistocene.

White, Samuel Stockton V (University of Montana)
(2) The Anzick Site: Updating the Archaeology and Analysis of a Clovis Complex Burial Assemblage
The Anzick site provides us with a glimpse into the lives of Clovis Culture peoples who traveled through the Shields River Valley in central Montana approximately 11,000 years before present. The site in its entirety consists of evidence relating to multiple separate occupations and uses, including that of a Clovis Complex burial. The burial assemblage consists of the partial remains of an infant in association with over one hundred lithic and osseous tools all of which were covered in red ochre. This burial assemblage might suggest a cultural belief in the afterlife as well as an indication of ceremonial interment of the deceased. Research continues in the form of data and imagery collection which is being compiled to provide additional knowledge for future comparative studies regarding the Clovis Culture. The ongoing

study of the Anzick Site and its various components will likely continue to provide clues into the ancient past and the peopling of the Americas.

White, TA and **Summers-Wilson, RJ** (University of Montana)
(12) An Empirical Study of the Decomposition Processes in the Rocky Mountains of Montana
The domestic pig (*Sus scrofa*) cadaver has been regularly utilized as a substitute for human cadavers in scientific studies of human decomposition processes due to its similar fat distribution, internal anatomy, lack of a heavy pelt, and omnivorous diet. The purpose of this study is to accumulate baseline data on the postmortem changes, progression of soft tissue decomposition, effects of environmental factors including climate, humidity, and altitude, as well as variety and substantiality of entomological activity on and associated with pig (Sus scrofa) cadavers in the northern Rocky Mountains of Montana. The information from this study will help forensic anthropologists better understand why the postmortem interval (PMI) may be different in the northern Rocky Mountains of Montana than other states or countries.

Wood, Rebecca (University of Montana)
(10) An Ethnographic Investigation into the Language Ideologies and Practices of a Salish Community
Research on the endangered Salish language spoken on the Flathead Indian Reservation has demonstrated the importance of understanding the greater sociocultural environment and ideological factors that play a role in the socialization of children. There are many influences surrounding language choice, both current and historical, and are best understood through Irvine and Gal's (2000) semiotic processes. This presentation explores how iconization, erasure, and fractal recursivity have shaped language choice, cultural practices and ideologies of Salish individuals. Data, collected through an ethnographic approach, are examined for the various ways social factors and contexts influence language use. The majority of the data was collected through observations of everyday interactions of individuals, but also include observations of educational and specialized language contexts and interviews with community members. Understanding the current language practices and ideologies of the Salish through semiotic processes helps explain the lack of overall success of the community's language revitalization efforts and provides insight into some of the obstacles that must be overcome for future generations to reclaim their cultural heritage within the community.

Yates, Corey (Utah State University)
(9) Obsidian in Southeastern Idaho? Thank You Captain Obvious, but what about Quartzite?
When discussing the stone raw materials used by prehistoric people in southeastern Idaho, most archaeologists will focus on the obsidian that is so ubiquitous in the region. While undeniably important, hunter-gatherers could not live by obsidian alone. Some activities required a more durable material, and for many people prehistorically, quartzite fulfilled that need. So what do we know about quartzite sources in southeastern Idaho? Not much. However, this research aims to change that for one small section of the region: the Soda Hills northwest of Soda Springs, ID. As part of a larger field research project, the 2011 Utah State University archaeological field school team documented four quartzite sources. In my poster I discuss these newly recorded quarries and suggest future tests to more systematically predict and record the locations of this economically important stone raw material in southeastern Idaho.

Yu, Pei-Lin, Kathy Tonnessen, Jaime Bach, and **Lisa Gerloff** (all, Rocky Mountain Cooperative Ecoystem Study Unit)
(5) Rocky Mountains CESU projects in cultural science, scholarship, and stewardship: the first ten years
The Rocky Mountains Cooperative Ecosystem Studies Unit (RM-CESU) has been facilitating important work in cultural resources research and stewardship since1999 for a variety of federal agencies. Research, technical assistance, and education projects are conducted by university partners, in a broad variety of scholarly disciplines. Students get first-hand research experience and faculty increase their base of expertise and funding. This paper will review the intent and role of the RM-CESU in federal cultural resources management, present a brief summary of the scope and diversity of RM-CESU cultural projects in the past ten years, and discuss anticipated future trends.