36th Great Basin Anthropological Conference
Salt Lake City, Utah | November 7-10, 2018
LOOK, DONT LOOT

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WELCOME AND ACKNOWLEDGEMENTS

Welcome to Utah and wonderful Salt Lake City. The Great Basin Anthropological Conference (GBAC) has a long history in our city. David Madsen and James O’Connell hosted the last GBAC in Salt Lake City nearly 40 years ago. Prior to that conference, Jesse Jennings and Wick Miller each chaired the conference at the University of Utah in 1956 and 1972. We are proud to honor these early connections with Salt Lake City, the University of Utah and the Natural History Museum of Utah.

This conference draws on the concept of the “Arrow of Time” to promote the study of peoples and cultures of the Great Basin and its relationship to surrounding regions. Physicists in 1927 developed this term to describe a unidirectional concept of time. By being aware of the changes in anthropology, our own observations, and our own paradigms, we become participants in the Arrow of Time by moving the field of anthropology forward.

As anyone who has had the opportunity to Chair a regional or national conference can attest, it takes the talents and efforts of many dedicated individuals to pull off a successful meeting. The success of this year’s meetings are the direct result of the following individuals; Brian Codding, Lisbeth Louderback, Michelle Knoll, Elizabeth Hora-Cook, Jill Jensen and Kenny Wintch. When you pass by them or have the opportunity to talk to them, please express your gratitude for a job well done.

I would also like to thank the Natural History Museum of Utah, the Sheraton Hotel, Tangerine Design, Webb Audio-Visual, Hammerstone, Brock James, and Jay King. I would also like to thank our wonderful sponsors and vendors. Last, but certainly never least, a special thanks to GBAA Board and good friend Kirk Halford who walked us through the planning of this conference.

As a huge fan of the GBAC, I hope you all have a wonderful time; attending sessions, reading posters, learning new concepts, revisiting those theories you purposely forgot since college, meeting old friends, making new friends, and enjoying all that Salt Lake City has to offer in food, drink, and entertainment.

Stop by and say hello over the next four days, I would love to talk to you.

Nate Thomas, Conference Organizer
2018 GBAC
## Schedule

**Wednesday, November 7, Evening**

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<tr>
<td>5:00-9:00</td>
<td>GBAC 2018 Opening Reception</td>
<td>Natural History Museum of Utah - Swaner Forum</td>
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<td>6:00-7:00</td>
<td>GBAA Board Meeting</td>
<td>Natural History Museum of Utah - Seminar Room</td>
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**Thursday, November 8, Morning**

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<th>Time</th>
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<tr>
<td>8:00-11:30</td>
<td>Plenary Session 1: Arrow of Time: Anthropological Disciplines of the Future</td>
<td>Canyons</td>
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**Thursday, November 8, Afternoon**

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<tr>
<td>1:00-3:15</td>
<td>Symposium: The Behavioral Ecology of Lithics: Interactions between the Environment, Humans, and Technology</td>
<td>Deer Valley</td>
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<td>1:00-5:00</td>
<td>Symposium: The Dirty 30 Years of Field School: Papers in Honor of Dennis L. Jenkins</td>
<td>Arches Ballroom</td>
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<tr>
<td>1:00-2:30</td>
<td>General Session: Paleoindian Archaeology</td>
<td>Alta-Brighton</td>
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<tr>
<td>1:15-3:45</td>
<td>General Session: Archaeometry</td>
<td>Canyons</td>
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<tr>
<td>2:00-4:00</td>
<td>Poster Session: Pleistocene-Holocene Occupation and Environment</td>
<td>Bryce Ballroom</td>
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<tr>
<td>3:00-4:30</td>
<td>Symposium: Districts: A Misunderstood Property Type</td>
<td>Powder Mountain-Solitude</td>
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<tbody>
<tr>
<td>5:00-7:00</td>
<td>Poster Symposium: Pints &amp; Posters</td>
<td>Canyons Lobby</td>
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**Friday, November 9, Morning**

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<tr>
<th>Time</th>
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<tr>
<td>9:00-11:45</td>
<td>Symposium: Current Research in Fremont Studies</td>
<td>Canyons</td>
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<tr>
<td>9:00-12:00</td>
<td>Roundtable: Great Basin Tribal Heritage Conversations</td>
<td>Powder Mountain-Solitude</td>
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<tr>
<td>9:00-11:00</td>
<td>Poster Session: Historical Archaeology</td>
<td>Bryce Ballroom</td>
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<td>9:00-11:00</td>
<td>Poster Session: Prehistoric Archaeology</td>
<td>Bryce Ballroom</td>
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<tr>
<td>9:00-11:45</td>
<td>General Session: Subsistence and Settlement</td>
<td>Alta-Brighton</td>
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<td>9:30-11:45</td>
<td>Symposium: Late Prehistoric Adaptive Change in the Great Basin</td>
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<tr>
<td>1:00-3:15</td>
<td>Symposium: From Paleoamericans to Purple Glass: Celebrating the Distinguished Career of Scott Thomas</td>
<td>Arches Ballroom</td>
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<td>1:30-4:45</td>
<td>Symposium: Women in Great Basin Archaeology</td>
<td>Deer Valley</td>
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<td>1:30-5:00</td>
<td>Symposium: Lincoln County Archaeological Initiative Symposium</td>
<td>Alta-Brighton</td>
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<td>1:30-3:30</td>
<td>General Session: Great Basin Environment and Land Use Patterns</td>
<td>Snowbird</td>
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<td>2:00-4:00</td>
<td>Symposium: Numic Roundtable</td>
<td>Powder Mountain-Solitude</td>
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<td>2:00-4:00</td>
<td>Poster Symposium: Theoretically Based Investigations of the Paleo-Indian Occupation of Grass Valley, Nevada</td>
<td>Bryce Ballroom</td>
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<td>2:00-4:00</td>
<td>Poster Symposium: Experimental Archaeology at Range Creek and Rio Mesa Field Stations</td>
<td>Bryce Ballroom</td>
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<tr>
<td>6:00-7:30</td>
<td>Banquet</td>
<td>Canyons</td>
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<td>8:00-10:00</td>
<td>Live Music from Hammerstone</td>
<td>Canyons</td>
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<td>8:00-11:30</td>
<td>Symposium: Bonneville Estates Rockshelter and the Paleoenvironment and Prehistory of the Central-Eastern Great Basin</td>
<td>Deer Valley</td>
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<tr>
<td>9:00-10:45</td>
<td>Symposium: New Discoveries in Known Sites and Old Collections: California State University Student Projects in Southeastern California and Nevada</td>
<td>Snowbird</td>
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<td>9:00-12:00</td>
<td>General Session: Great Basin History</td>
<td>Alta-Brighton</td>
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<tr>
<td>9:30-11:00</td>
<td>Symposium: From Pots to Pelecypods: A Tribute to the Career of Dr. Kenneth C. Reid</td>
<td>Arches Ballroom</td>
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<td>10:00-11:15</td>
<td>General Session: Education, Management, and Outreach</td>
<td>Powder Mountain-Solitude</td>
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<td><strong>Wednesday, November 7, Evening</strong></td>
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**GBAA Board Meeting**

Natural History Museum of Utah - Seminar Room, 6:00-7:00  
*Chair: F. Kirk Halford*

**Wednesday, November 7, Evening**

**GBAC 2018 Opening Reception**

Natural History Museum of Utah - Swaner Forum/Sky Terrace, 5:00-9:00  
*Chair: Nathan Thomas*

Opening Reception at the Natural History Museum of Utah. Shuttles will provide transportation from the Sheraton Hotel. The Registration Desk will be open during the event.
Plenary Session 1: Arrow of Time: Anthropological Disciplines of the Future
Canyons, 8:00-11:30
Organizers: Brian Codding and Lisbeth Louderback

This session calls on experts from the Great Basin and surrounding regions to present their vision for the future of method and theory in Great Basin anthropology.

8:00   Domestic animals and the Columbian Exchange: ideas for the Great Basin from the Middle Rio Grande
Emily Lena Jones

8:15   Directing the Arrow by Chasing its Tail: Climate, Adaptation, and Future (agri)Cultural Systems in the West
Kyle Bocinsky

8:30   Mobility and territoriality: understanding stylistic diversity in Great Basin Rock Art
Jo McDonald

8:45   An Agenda for Future Perishable Artifact Research in the Great Basin
Edward Jolie

9:00   Using the Power of Computer Simulation to Uncover the Past
Stefani Crabtree

9:15   Investigating Great Basin Prehistory in Context of an HBE Perspective of Divisions of Labor
David Zeanah

9:30   Nutritional Ecology and the Benefits of Fact-Based Model Building
Bryan Hockett

9:45   Break

10:00  Radiocarbon Big Data and Holocene Population Dynamics in the Great Basin
Erick Robinson and Robert L. Kelly

10:15  How Prestige Influences Prey Choice and Why Archeologists Should Care
Karen Lupo

10:30  Ancient DNA and Great Basin Zooarchaeology: Recent Applications and Future Prospects
Jack Broughton

10:45  Seeing the unseen: microbotanical analyses bring invisible aspects of past diets into the light
Nicole Herzog

11:00  Change Through Time and Human Experience in the Paleoindian-Era Great Basin
Daron Duke

11:15  A synthesis of fire history across the West Desert, Utah for the last ~20,000 years
Andrea Brunelle, Kaylee Jones, Isaac Hart, and Jennifer DeGraffenried
Symposium: Districts: A Misunderstood Property Type

Powder Mountain-Solitude, 3:00-4:30
Organizer: Jessica Axsom

Districts, as a property type defined within the framework of the National Register of Historic Places is among the least understood. Thus, its use frequently varies from under-utilized to misuse. As Cultural Resources professionals we must lean-in and learn from each other (and the National Register Bulletins) on how to use this property type correctly and effectively. This is symposium will explore the good, bad, ugly, and best of Districts, a misunderstood property type.

3:00   Districts: A Misunderstood Property Type (or What are Districts?)
Jessica Axsom

3:15   When is a District?
Karyn de Dufour

3:30   I’m Surrounded by Sites, but is it a District?
Robert McQueen

3:45   Too Much of a Good Thing?: Effective Management of Cultural Resources in Areas of Overlapping “Districts”
Jonah Blustain

4:00   Landscapes and Districts: A Prehistoric Perspective
Cassandra Albush

4:15   How to Record 15 Sites on One Form: Managing the Virginia City Historic District
Alain Pollock

Symposium: The Behavioral Ecology of Lithics: Interactions between the Environment, Humans, and Technology

Deer Valley, 1:00-3:15
Organizers: L. Brock James and Kaley Tucker

1:00   Cooperative Foraging Strategies and Technological Investment in the Western Great Basin: an Investigation of Archaeological Remains from the Winnemucca Lake Caves
Dallin Webb

1:15   Diachronic Variability in Toolstone Use in the Catnip Creek Delta, Guano Valley, Oregon
Derek Reaux and Geoffrey Smith
Rocks and Glass are Heavy, but Flakes Make Useful Tools: Application of the Marginal Value Theorem to Demonstrate Increased Processing Intensity of Lithic Cores and Expedient Tool Use as Mitigating Actions for the Transportation Costs of Lithic Material

L. Brock James, Kaley Tucker, Kate Magargal, and Brian Codding

Assessing Failure Rates and Tool Utility in the Manufacture of Great Basin Stemmed Projectile Points

George Jones and Charlotte Beck

Cerberus Collection Lithic Analysis: Results and the Implications of Researching a Looted Collection

Savanna Agardy and Diana Barg

Does scraper technology predict group size?

Joshua Boyd

Expedient tools: an experimental test of the accuracy of field identification for use-wear

Chris O’Connor-Coates and L. Brock James

Symposium: The Dirty 30 Years of Field School: Papers in Honor of Dennis L. Jenkins

Arches Ballroom, 1:00 - 5:00

Organizers: Katelyn McDonough, Richard Rosencrance, and R. Patrick Cromwell

This symposium recognizes and honors Dennis Jenkins’ 30 years as the University of Oregon’s Northern Great Basin Prehistory Project field school director. During this time he has mentored and inspired generations of archaeologists. These field schools and Dr. Jenkins’ research have shaped our understanding of northern Great Basin prehistory and the peopling of the Americas. These papers are presented by past field school students and others greatly influenced by Dr. Jenkins’ work.

Taking on a Mountain: Learning the Value of Reinvestigating Old Sites and New 14C Dates from Cougar Mountain Cave, Oregon

Richard Rosencrance

Terminal Pleistocene Foraging Strategies at the Paisley Caves, Oregon

John Blong, Lisa-Marie Shillito, and Dennis Jenkins
1:30  What's in a Hearth? Botanical Remains as Indices of Younger Dryas Climate, Diet, and Behavior at the Paisley Five Mile Point Caves, Southcentral Oregon
Jaime Kennedy
2:00  Humans and Climate: Current Findings on Paleoecology from Two Northern Great Basin Lakes, Chenier Sabas
Kirsten Lopez
2:15  Resurrected from the Files: Pre-Mazama Burials from 35LK53, Oregon
Pamela Endzweig, Guy Tasa, and Jon Erlandson
2:30  "If you walk a mile, you might find a projectile" Dr. Dennis Jenkins and his contribution to research methods and values in the Northern Great Basin and beyond
Grant Snitker
2:45  Break
3:00  Modeling Settlement Patterns in the East Chewaucan Basin: applying Human Behavioral Ecology Models to the Archaeological Record
R. Patrick Cromwell
3:15  Lessons from The Big Empty: A Near-Decade of Learning from Dennis Jenkins in the Oregon Outback
Geoffrey Smith
3:30  Towards a Multi-Scale Geoaquarchological Framework at the Connely Caves (35L493), Fort Rock Basin, Oregon
Justin Holcomb, Karl Bogue, Beatrice Fletcher, and Dennis Jenkins Zoological Analysis of Cave 4
Gabriel Sanchez
3:45  Caves, Coprolites, and Courage: Life lessons from Dennis Jenkins
Katelyn McDonough
4:15  Discussant
Thomas Connolly
4:30  Aviva Years Directing the Northern Great Basin Prehistory Project
Dennis Jenkins
Thursday, November 8, Afternoon

Poster Session: Pleistocene-Holocene Occupation and Environment

Bryce Ballroom, 2:00-4:00

That Other Fluted Point Form in the Intermountain West? It’s Time for a Name
Charlotte Beck and George Jones

Reconstructing Lake Bonneville: An Analysis of Lake Core Collected Near Fish Springs Wildlife Refuge
Marianne Newell

Late Paleoindian Site Organization and Abandonment Processes: A Case Study
Jerry Galm, Stan Gough, and Julia Furlong

Could it be Paleoindian if the Obsidian Hydration Rim is at Ten?
Keith Hardin and Heidi Roberts

Re-Examining Pluvial Lake Chewaucan Shorelines
Brianna Kendrick and Patricia McDowell

Thursday, November 8, Afternoon

General Session: Paleoindian Archaeology

Alta-Brighton, 1:00-2:30
Chair: L. Suzann Henrikson

1:00 Pluvial Lake Terreton: Understanding the Terminal Pleistocene Occupation of Southern Idaho’s Pioneer Basin
L. Suzann Henrikson, Trent Armstrong, Nicholas Holmer, and Reese Cook

1:15 Revisiting Leonard Rockshelter to Evaluate a 70-Year-Old Claim of a Clovis-Era Occupation
Sara N. Sturtz, Geoffrey Smith, Nicole George, Derek Reaux, and Richard Rosencrance

1:30 Perishables and Paleoindians Redux: The Role of Nondurable Technology in the Colonization of the Great Basin
James M. Adovasio

1:45 Challenging old paradigms: Pre-Clovis in the western Great Basin
Jerry Jerrems

2:00 Early Test Excavations at a Cave in Nevada’s Black Rock Desert
Patricia DeBunch, James Bunch, and Ruth Gruhn

2:15 Geoarchaeology of the Northern Goshute Basin, Nevada: Pluvial Lake Waring Draw-Down History, Environment, and Occupation History
William Eckerle
Thursday, November 8, Afternoon

General Session: Archaeometry

Canyons, 1:15-3:45
Chair: Gregory Burns

1:15 Corn Cobs: What can they tell us about Great Basin People?
Linda Scott Cummings

1:30 Defining Southern Idaho’s Terminal Pleistocene Cultural Landscape through Volcanic Glass Source Analysis
Reese Cook, Nicholas Holmer, Trent Armstrong, Marie Holmer, and L. Suzann Henrikson

1:45 2D and 3D Morphometrics for Assessing Terminal Pleistocene/Early Holocene Point Typologies in the Pioneer Basin of Southern Idaho
Nicholas Holmer, Trent Armstrong, Reese Cook, Marie Holmer, and L. Suzann Henrikson

2:00 A Statistical Revisit to the Morphology of Corner-notched Dart Point in the Eastern Great Basin
Andrew Hoskins

2:15 Break

2:30 A New Approach to Bison Specimen Aging and Theory
Andrew Edward Owens

2:45 Isotopic Sourcing of Olivella Beads in the Great Basin
Gregory Burns and Jelmer Eerkens

3:00 Trail Tails with UAV Technology
Matt Yacubic

3:15 Calibration, Sampling, and Statistics in the Analysis of Southern Idaho Volcanic Glass by pXRF
Trent Armstrong, Marie Holmer, and Ross Kunz

3:30 Learning From Experience: Application of Machine Learning to Zooarchaeological Species Identification
Kasey Cole, Peter Yaworsky, and Isaac Hart
Thursday, November 8, Evening

Poster Symposium: Pints & Posters

Canyons Lobby, 5:00-7:00
Organizer: Elizabeth Hora-Cook

*Mining & Mercury in Nevada: a Retort in the Bare Mountains, Nye County*
Joellen Ross-Hauer

*The Avifauna of Lake Bonneville*
Allison Wolfe and Jack Broughton

*Buckaroos and Baskets: Stylistic Choices of Native Basket Makers in the Great Basin*
Anna Camp and Maggie Brown

*Making SENSE of Archaeology: Learning with Independence*
Shawn Lambert

*Expanding the Chronological Toolkit: Luminescence Dating in Archaeological Contexts*
Carlie Ideker, Tammy Rittenour, and Michelle Nelson

*Equine Archaeology: Using Horses to Understand Society*
Kristina Stelter

*Of Gambel Oak and Coral Pink Sand: New Insights into Virgin Branch Puebloan Settlement on the Western Grand Staircase*
Aaron Ollivier

*A Preliminary Prehistoric Archaeological Site Predictive Model for Dinosaur National Monument*
Trista Schiele

*Prey Mortality a Weak Link Between Human Overhunting and Variation in Prey Age Structure*
Andrew Ugan

*Archaeological Potential of the Grand Staircase-Escalante National Monument*
Peter Yaworsky, Kenneth Vernon, and Brian Codding

*Prehistoric and Historic Archaeology along the West Shore of Winnemucca Lake, Washoe County, Nevada*
Dayna Giambastiani

*Drone Use and Imagery to Assess Current Conditions and Impacts at Cultural Resources on the Public Use Area of a Training Range at Mountain Home Air Force Base, Owyhee County, Idaho*
Jerome King, Vickie Clay, and Noelle Shaver

*Aboriginal Adobes on Edwards Air Force Base*
Jeffrey Baker and Jessica Porter-Rodriguez
For decades researchers have described and viewed the Fremont as an enigma. This is, in part, due to its unique location as a place between. Situated on the northern fringes of the agricultural Puebloan Southwest and far eastern reaches of the Great Basin hunter-gatherer tradition, Fremont seem, in many ways, to be a blending of both. This has made it difficult to know how to approach research in this region. Recent excavations, new innovative research ideas, and thorough re-evaluations of existing museum collections have helped us gain a clearer understanding of who the Fremont were. The papers in this symposium represent some of the latest research in Fremont studies. These recent approaches to Fremont archaeology each provide key components to demystifying the Fremont.

9:00  Fremont Villages in Their Cultural Landscapes
Katie Richards, James Allison, and Lindsay Johansson

9:15  Hiding in Plain Site: Late Fremont Villages in the Uinta Basin
James Allison

9:30  Multi-Decadal Climate Variability, Safe Operating Spaces, and the Fremont Agricultural Transition in Northeastern Utah
Judson Finley, Erick Robinson, Justin DeRose, and Elizabeth Hora-Cook

9:45  Embedded Procurement and Exchange: Obsidian from Wolf Village Utah
Jacob Jepsen, James Allison, and Jeffrey Ferguson

10:00 An Examination of the Non-Obsidian Stone Tools from Wolf Village
Brandon Walter

10:15  Break

10:30  Settlement-Subsistence Strategies and Economic Stress Among the Sevier Desert Fremont
Robert Nash

10:45  Identifying the ‘Local’: The Practicality of Strontium Isotope Analysis in Fremont Archaeology
Spencer Lambert

11:00  Strontium Isotope Analysis in the Eastern Great Basin: Potential challenges, rewards, and a Fremont case study.
David Yoder, Spencer Lambert, and Michael Searcy

11:15  Decorative Variation in Wolf Village Ceramics
Joseph Bryce

11:30  A Closer Look at Fremont Textile Production: Spinning and Whirling
Kelsey Ellis
Friday, November 9, Morning

Symposium: Late Prehistoric Adaptive Change in the Great Basin

Arches Ballroom, 9:30-11:45
Organizer: Robert Bettinger

In typology, there are lumpers and splitters; in studies of behavioral change there are gradualists, punctuationists, environmental determinists, processualists, historical particularists, cognitivists, and various combinations of these and other points of view. The contributions to this symposium span this diversity, identifying and offering explanations for instances of late prehistoric behavioral change leading to patterns observed ethnographically, consisting of studies concentrating on low elevation or general patterns of change and those attending to high elevation, alpine patterns of change.

9:30  Obsidian Source Use Patterning in Monitor Valley
Richard Hughes and David Hurst Thomas

9:45  Economic Intensification and Seasonality in the Alpine Zone, White Mountains, California
Jacob Fisher

10:00  Plant Use at Late Holocene Sites in the White Mountains, eastern California
David Rhode

10:15  Population and Settlement Disruption during the Late Period: Implications for the Expansion of Numic Speaking People in the Great Basin
William Hildebrandt and Kelly McGuire

10:30  Break

10:45  Numic adaptations in central Nevada
Kate Magargal

11:00  The Numic Spread North of 40 Degrees: Montane Intensification Without Piñon
Christopher Morgan and Kaitlyn Mansfield

11:15  A Shoshonean Prayerstone Hypothesis: Ritual Cartography of Great Basin Incised Stones
David Hurst Thomas

11:30  What White Mountain Projectile Points Tell Us About Great Basin Prehistory
Robert Bettinger
Friday, November 9, Morning

Roundtable: Great Basin Tribal Heritage Conversations

Powder Mountain-Solitude, 9:00-12:00
Organizer: Diane Teeman

This session includes presenters Richard Arnold, Donna Cossette, Louise Dixey, Joseph Holley, Ted Howard, Alvin Moyle, Diane L. Teeman, Marissa Weaselboy, with a roundtable discussion to follow.

Participants:

Donna Cossette, Fallon Paiute-Shoshone Tribes
Alvin Moyle, Fallon Paiute-Shoshone Tribes
Marissa Weaselboy, UNR and Western Shoshone (Duckwater, NV)
Richard Arnold, Pahrump Paiute Tribe
Ted Howard, Shoshone-Paiute Tribes (Owyhee, NV)
Joe Holly, Te-Moak Tribe of Western Shoshone (Battle Mountain, NV)
Louise Dixey, Shoshone-Bannock Tribes (Ft. Hall, ID)
Diane L. Teeman, Burns Paiute Tribe (Burns, OR)
Friday, November 9, Morning

**Poster Session: Prehistoric Archaeology**

Bryce Ballroom, 9:00-11:00

*Last Canyon Cave Perishables: Cordage and Sandals*
Marcel Kornfield, James M. Adovasio, and Mary Lou Larson

*Red Writings on the Walls: the Pictographs of Salt Cave and Surrounding Sites*
Mark Estes, Andrea Catacora, and Sarah Branch

*The Paleoindian Projectile Point Assemblages from Fort Rock Cave, Cougar Mountain Cave, and the Connley Caves*
Sophia Jamaldin

*Population Stability in the Great Basin and Across the Globe: a Model on Species Richness*
Darcy Bird, Jacob Freeman, and Erick Robinson

*Connley Cave 6: Chronology, Lithic Assemblage, and Future Research Directions*
Haden Kingrey, Richard Rosencrance, Katelyn McDonough, and Dennis Jenkins

*Seldom Seen: A Look at Petroglyphs and Pictographs on the Nevada Test and Training Range*
Joanna Roberson, Daron Duke, and Jerome King

*Obsidian Sourcing and the Origins of the Black Mountain Redoubt Site, Wyoming*
Mary Erlick

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**Poster Session: Historical Archaeology**

Bryce Ballroom, 9:00-11:00

*Old Wood: Testing of the Transcontinental Railroad’s Woody Legacy*
Christopher Merritt, Elizabeth Hora-Cook, Michael Sheehan, and Matt Bekker

*Boarding Houses, Baking Powder, and Your Favorite Prescription: Advertising and Consumer Culture at Silver King Mining District, Lincoln County, Nevada*
Sarah Branch

*Flying the Fly Canyon Bypass with Satellites, Lidar, and Drones*
Kathryn Ataman, Mark Hall, Levi Keach, Peggy McGuckian, Tanner Whetstone, and Megan Holleran

*Cultural Appropriation of Utah’s Monuments & Markers*
Whitney Seal
## Friday, November 9, Morning

### General Session: Subsistence and Settlement

**Alta-Brighton, 9:00-11:45**

**Chair:** Erik Martin

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<tr>
<td>9:00</td>
<td>How the Ancient People from Two Diverse Valleys Accessed the Rich Landscape of the Wasatch Plateau in Central Utah</td>
<td>Sarah Herrera</td>
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<td>9:30</td>
<td>The Excavation of Midden Features along the Snake River at Swan Falls, Idaho</td>
<td>Paul Santarone, Tyrone Corn, and Kenneth Cannon</td>
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<td>9:45</td>
<td>Excavation of Three Fremont Brush Shelters in the Mahogany Mountains North of Modena in Iron County, Utah.</td>
<td>Heidi Roberts and Keith Hardin</td>
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<td>10:00</td>
<td>Black Rock Archaic: Recent Test Excavations at Trego Hot Springs, Pershing County, Nevada</td>
<td>Ryan Byerly and D. Craig Young</td>
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<td>10:15</td>
<td>Break</td>
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<td>10:30</td>
<td>Settlement Patterns in the Great Basin: Analyzing the Bare Allotment of Western Nevada</td>
<td>Noel Jones</td>
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<td>10:45</td>
<td>An Analysis of Paleobotanical Samples from Southern Utah</td>
<td>Shalise Jenkins</td>
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<td>11:00</td>
<td>Where's the Beef? Prestige Hunting, Climate, and the Faunal Record</td>
<td>Erik Martin</td>
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<td>11:15</td>
<td>Taphonomic analysis of faunal collections from Fort Rock and Connley Caves, Oregon</td>
<td>Andrew Boehm</td>
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<td>11:30</td>
<td>Salt of the Earth: Salt Manufactory in the Sierra</td>
<td>Shelly Davis-King and Angela Younie</td>
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Friday, November 9, Afternoon

Symposium: Lincoln County Archaeological Initiative Symposium

Alta-Brighton, 1:30-5:00
Organizer: Robert Hickerson

1:30 Lincoln County Archaeological Initiative
   Robert Hickerson

1:45 Bypassing the Bonanza: History and Archaeology in the Silver King Mining District, Lincoln County, Nevada
   Sarah Branch

2:00 Under the Dust of Time: archaeological implications of the desert dust geomorphic cycle in Lincoln County, Nevada
   D. Craig Young and Thomas F. Bullard

2:15 Portable XRF Analysis of Rock Art Pigments Used in Pictographs in Lincoln County, Nevada
   Michael Ligman

2:30 Break

2:45 Preliminary Results of Terminal Pleistocene to Early Holocene Archaeological and Lake History Research in Coal Valley, Basin and Range National Monument, Lincoln County, Nevada
   Teresa Wriston and Kenneth Adams

3:00 When the Silver is Gone: A History of Farming and Ranching in Lincoln County, Nevada
   Anne Oliver and Kaitlin Hovanes

3:15 3D Documentation at Three Lincoln County Sites
   Mary Ringhoff, Julia Ausloos-Bedinger, and Michael Nulty

3:30 A Point in Time - A Documentary Film
   Tammara Norton and Phil Gross
Symposium: Women in Great Basin Archaeology

Deer Valley, 1:30-4:45
Organizers: Suzanne Eskenazi and Nicole Herzog

Archaeology in the west has long had the reputation of being a “man’s world” where “drinking, digging, and doing some interesting work too” prevailed—an environment that often left little space for women. However, as more women enter the field, a recognition of the contributions of women—including those working in the Great Basin—has grown. This symposium will focus on the achievements of women in Great Basin archaeology. Talks will reflect on the history of women’s work in the Basin and showcase their research in academic, agency and cultural resource management realms. By telling our stories we hope to address the politics of recognition, bring women together to inspire and uplift one another, and spark conversations about inclusion, diversity, and the future of archaeology in the Great Basin.

1:30  The Quick and the Dead: The Showdown between the Sexes in Great Basin Anthropology
Heidi Roberts

1:45  Great Basin Women Scholars: A View Through the University of Utah Anthropological Papers
Reba Rauch

2:00  From Stewardess to Archaeologist
Charlotte Beck

2:15  Gender, Occupation, and the Costs and Benefits of Publication Strategies in Great Basin Archaeology
Shannon Tushingham and Tiffany Fulkerson

2:30  Is Rock Art in the Surprise Resource Area Predictable?
Jen Rovanpera and Jim Laacke

2:45  How Did I Arrive Here, and What’s Next?
Linda Scott Cummings

3:00  Break

3:15  Landscapes of Change: Old Perspectives and New Directions in the Great Basin
Melinda Leach

3:30  Bullseye: managing cultural resource sites to reduce the occurrence of illegal collecting and improve site conditions.
Laurel Glidden

3:45  Following Isabel Kelly: Fifty Years Plus on the Trial of a Pioneer Ethnologist/Archaeologist
Catherine Fowler

4:00  The Accidental Archaeologist
Joan Coltrain

Discussants:
Suzanne Eskenazi and Nicole Herzog
Friday, November 9, Afternoon

Symposium: From Paleoamericans to Purple Glass: Celebrating the Distinguished Career of Scott Thomas

Arches Ballroom, 1:00-3:15
Organizers: Jordan Pratt and Patrick O'Grady

Scott Thomas worked twenty-three years as the archaeologist for the Burns District Bureau of Land Management before retiring this August. Throughout his career Scott has either conducted or supported archaeological research spanning the vast timeline of human history in the northern Great Basin, from pre-Clovis encampments near Wagontire to Basque dendroglyphs on Steens Mountain. He provided a wide range of support to fellow archaeologists, from water buffaloes to research sites, which has benefited our understanding of the region in immeasurable ways. This symposium pays homage to his years of service, his devotion to the heritage of the district, and to his proactive and generous support of avocational, student, and professional archaeological research.

1:00  Windstorms and Wildfires: 15 Years in the Field with Scott Thomas
Patrick O'Grady

1:15  Revisiting the 2000-2002 excavations at the Weed Lake Ditch Site, Harney County, Oregon
Teresa Wriston

1:30  Exploring the Age of two Western Stemmed Tradition sites (Nials and Weed Lake Ditch), Harney Basin, Oregon
Jordan Pratt

1:45  Raw Material Selection Among Fluted Point Makers in the Northwestern Great Basin
Nicole George, Geoffrey Smith, and Michael Rondeau

2:00  Break

2:15  A Geochemical Signature of Tosawihi Chert Applied to the Southeastern Oregon Shoshone Complex
Bethany Wurster and Judson Finley

2:30  Petrographic Analysis and Luminescence Dating of Pottery from Skull Creek Dunes, Catlow Valley, Southeastern Oregon
Makaela O'Rourke, Judson Finley, Scott Thomas, Carlie Ideker, and Tammy Rittenour

2:45  The Day Horses Ate His Truck, Adventures with Scott Thomas
Michael Rondeau

3:00  Diverse Stakeholders: Letters in Support of Scott Thomas
Jordan Pratt and Patrick O'Grady
Friday, November 9, Afternoon

Symposium: Numic Roundtable

Powder Mountain-Solitude, 2:00-4:00
Organizer: Melvin Brewster

Numu Origins I: Rethinking Numu Antiquity III
Melvin Brewster and Citlalin Xochime

General Session: Great Basin Environment and Land Use Patterns

Snowbird, 1:30-3:30
Chair: Christopher Kiahtipes

1:30 Caso Rock Art of Eastern California: The result of a Western Anabasis
Alexander Rogers and Robert Yohe

1:45 Native Occupation and Obsidian Acquisition in Northern Yosemite National Park
Kathleen Hull

2:00 Sixteenth Century Irrigation in Central Utah: Chronology, Agricultural Economics, and Continuity Between Ancient and Modern Tribes
Steven Simms, Tammy Rittenour, and Molly Cannon

2:15 Break

2:30 Archaeo-ecosystem Surveys of Puebloan Sites in Bears Ears, Southeast Utah
Bruce Pavlik, Lisbeth Louderback, and Brian Codding

2:45 Holocene Climate Change as a Model for Future Global Warming in the Bonneville Basin
Christopher Kiahtipes

3:00 Linking archaeological and paleoecological histories in the Bonneville Basin: a comparison of Camels Back Cave and Simpson Spring, Utah
Kaylee Jones, Andrea Brunelle, Jennifer DeGraffenried, and Isaac Hart

3:15 Brush Fences of the Uinta Ute
Jeffrey Rust
Friday, November 9, Afternoon

Poster Symposium: Experimental Archaeology at Range Creek and Rio Mesa Field Stations

Bryce Ballroom, 2:00-4:00
Organizer: Shannon Boomgarden

Costs and Benefits of Fremont Food Storage: Granary Construction Experiments in Range Creek Canyon
Shannon Boomgarden and Ellyse Simons

Drought Related Site Distribution of Prehistoric Irrigation Farmers
Shannon Boomgarden, Duncan Metcalfe, Ellyse Simons, and Jared Jackson

An Actualistic Experiment Investigating the Costs and Benefits of Irrigation
Ellyse Simons, Shannon Boomgarden, Duncan Metcalfe, Cody Haisley, and Brendan Ermish

Understanding Incremental Development of Prehistoric Agricultural Fields Through Experimental Research
Cody Haisley, Shannon Boomgarden, Ellyse Simons, and Duncan Metcalfe

The effects of fire on annual density of wild onion, a geophyte resource on the Colorado Plateau.
Isaac Hart, James O’Connell, and Josh Trammell
The nature of human use of the central Great Basin during the Pleistocene-Holocene Transition (PHT) remains unclear. Ongoing archaeological research in Grass Valley, Nevada, focuses on understanding foraging behavior in changing PHT landscapes through expectations of Human Behavioral Ecology and geoarchaeological investigations for defining the extent of wetland habitats and potential for “old dirt”. Results document a widespread paleosol in Grass Valley, predating Mazama tephra and representing an interlude of landscape stability within the climatic variability of the PHT. Subsurface archaeological materials suggest use of a variety of riparian, marsh, and upland habitats associated with desiccating Pleistocene Lake Gilbert. Findings call for a reconsideration of earlier archaeological research in Grass Valley and provide a greater understanding of PHT occupations in the central Great Basin.

Climate-driven subsistence transitions in Grass Valley, NV
Kate Magargal, Brian Codding, and David Zeanah

Preliminary Comparison of Paleoindian Sites 26LA781 (Knudsen site) and 26LA4434 in Grass Valley, Nevada
Robert Elston and Martijn Kuypers

Interpreting a Buried, Paleo-Indian, Open-Air Site in Grass Valley, Nevada
Ryan Bradshaw, Martijn Kuypers, and David Zeanah

Prearchaic Land Use in Grass Valley, Nevada: this time with Bayes
Kenneth Vernon, D. Craig Young, David Zeanah, Robert Elston, and Brian Codding

A Preliminary Analysis of a Discrete Biface Manufacture and Lithic Reduction Locus
Paul Allgaier, Martijn Kuypers, and Fallon Akerson
Friday, November 9, Evening

Banquet

Canyons, 6:00-7:30

Live Music from Hammerstone

Canyons, 8:00-10:00
Saturday, November 10, Morning

Symposium: From Pots to Pelecypods: A Tribute to the Career of Dr. Kenneth C. Reid

Arches Ballroom, 9:30-11:00
Organizers: Kenneth Cannon and Brooke Arkush

8:30 Out of the Box: New Horizons for Cultural Resources Data Management and Analyses
F. Kirk Halford

8:45 Givens Hot Springs and Mud Springs
Thomas Green

9:00 The Archaeology of Hidden Springs: A Prehistoric Tool Stone Quarry and Habitation Locale in the Birch Creek Valley of Eastern Idaho
Brooke Arkush

9:15 Paleofloods, Terraces and Hells Canyon Archaeology
Vaughn Kimball

9:30 Break

9:45 Rock Ovens of Southern Idaho: Indicators of Immigrant Laborers and Their Ethnicity
Shane Baker

10:00 Finding Bia Ogoi: The Application of Historic Documents and Geomorphology to the Understanding of 19th Century Landscape Change of the Bear River Valley, Franklin County, Idaho
Kenneth Cannon, Kenneth Reid, Molly Cannon, and Joel Pederson

10:15 Results of Salvage Excavations at 10AA190, Ada County, Idaho
Paul Santarone, Tyrone Corn, and Kenneth Cannon

10:30 Connecting communities through applied archaeology
Molly Cannon

Discussant:
Kenneth Reid
Bonneville Estates Rockshelter is a ‘dry cave’ located upon the fossil high shoreline of Pleistocene Lake Bonneville, about 30 km south of the town of West Wendover, Nevada. Our team excavated approximately 50 sq m of the rockshelter from 2000 through 2009, and since then we have been engaged in detailed analyses of materials recovered from the excavation. As these studies are now being completed and a final report is in preparation, in this symposium we provide some of the results of our endeavors, focusing on various aspects of geochronology, paleoenvironments, lithic and perishable technologies, and subsistence organization based on archaeozoological and archaeobotanical remains. Since past presentations and publications have focused primarily on the Paleoindian occupation of the rockshelter, in this symposium we direct more attention to the later periods of the Archaic, exploring diachronic change through the Holocene and putting Bonneville Estates’ record in the context of central-eastern Great Basin prehistory and paleoecology.

8:00  Re-introducing Bonneville Estates Rockshelter
Ted Goebel

8:15  Late Pleistocene to Holocene paleohydrologic context of the Bonneville Estates Rockshelter region, Utah and Nevada
Kenneth Adams

8:30  Revisiting the Blue Lake pollen core for vegetation change around Bonneville Estates Rockshelter
Lisbeth Louderback, David Rhode, Kaylee Jones, and Ted Goebel

8:45  Stratigraphy and Chronology at Bonneville Estates Rockshelter, Eastern Great Basin
Kelly Graf, Ted Goebel, Bryan Hockett, and David Rhode

9:00  Small-mammal remains as indicators of fossil accumulative mechanisms and changes in regional moisture and biotic communities at Bonneville Estates Rockshelter
Dave Schmitt

9:15  Break

9:30  What in the Hell Happened During the Early Holocene in the Great Basin?
Bryan Hockett, Geoffrey Smith, and Richard Rosencrance

9:45  Dietary Inferences from the Bonneville Estates Rockshelter Archaeobotanical Record
David Rhode

10:00  The Prehistoric Diet: Genomic Analysis of Flora and Fauna Found in Bonneville Estates Coprolites, Nevada
Taryn Johnson and Anna Linderholm
10:15  Diachronic Analysis of Basketry and Cordage from Bonneville Estates Rockshelter, Nevada
Marion Coe

10:30  Obsidian Sourcing and Raw Material Analysis of Lithic Artifacts at Bonneville Estates
Rockshelter
Joshua Keene and Ted Goebel

10:45  Obsidian Hydration Dating at Bonneville Estates Rockshelter
Alexander Rogers and Daron Duke

11:00  Technological organization at Bonneville Estates Rockshelter: A Diachronic Perspective from
Paleoindian to Late Archaic Times
Ted Goebel

11:15  The BER Projectile Points: 13,000 Years of Point Typology and Chronology in the Great Basin
Bryan Hockett and Ted Goebel

Saturday, November 10, Morning

General Session: Education, Management, and Outreach

Powder Mountain-Solitude, 10:00-11:15
Chair: Jill Jensen

10:00  Archaeological Outreach and Heritage Tourism at Danger Cave State Park Heritage Area
Ronald Rood and Justina Parsons-Bernstein

10:15  Cultural Resources in an Era of “Energy Dominance”: Process and Policy for BLM Oil and Gas
Leasing
Nicole Lohman

10:30  National Trails System Act at 50: Preservation, Awareness, Participation
Jill Jensen

10:45  Thinking Outside the Trunk: Effective Archaeology Education for the 21st Century
Samantha Kirkley and Jeanne Moe

11:00  Education and Enforcement: How the Bureau of Land Management is Confronting Looting on
Public Lands in Utah
Diana Barg and Nathan Thomas

Great Basin Anthropological Conference
Saturday, November 10, Morning

Symposium: New Discoveries in Known Sites and Old Collections: California State University Student Projects in Southeastern California and Nevada

Snowbird, 9:00-10:45
Organizer: Helen Wells

California State University, Los Angeles, began its Mojave Desert research program in 2007, testing previously recorded rock shelter sites on the Naval Air Weapons Station (NAWS) China Lake. Ongoing analysis of materials from these sites continues to yield new data on Late Prehistoric use of the South Range of NAWS. Current research by California State University students also includes preliminary results from several new projects in other areas. In 2017 we shifted our field efforts to Rose Valley, where we are mapping and testing the site associated with the Borden collection. Individual students are also analyzing archived collections and revisiting other previously recorded sites in southeastern California and Nevada.

9:00  New Data from the Stick Site (CA-SBR-14), a Rock Shelter on the South Range, Naval Air Weapons Center (NAWS), China Lake, California
Helen Wells, Melanie Saldaña, and Anthony Morales

9:15  An Interdisciplinary Approach to Understanding the Rose Valley Site (CA-INY-1799): A Paleoindian site in the Western Great Basin
Anthony Morales

9:30  Revisiting the Archaeology of Dry Lake Cave (CA-INY-1898)
Andrea Ogaz

9:45  Break

10:00  Huntoon Valley Pronghorn Trap Complexes of the Great Basin
Kara Jones, Robert Yohe, and Robert Parr

10:15  Still Relevant: Applying the Monitor Valley Key to a Recently Recovered Collection of Projectile Points Found in Monitor Valley, Nevada
Jeffrey Rosa Figueroa

10:30  If these bones could talk: what do faunal remains tell us about the groups who occupied Resurrection Shelter and Sleepy Hollow Rock Shelter at Darwin Wash, Naval Air Weapons Center, China Lake.
David Fornelli
Saturday, November 10, Morning

General Session: Great Basin History

Alta-Brighton, 9:00-12:00
Chair: Christopher Merritt

Break

9:00    A Salty Surprise
Christopher Merritt

9:15    Persistence among the Northern Paiute: Negotiation Strategies in Aurora, Nevada
Lauren Walkling

9:30    The Scenic Route: Historic Filming Locations in Utah
Anali Rappleye

9:45    Back Next Fall: A 19th Century Fisherman’s Cache from Winnemucca Lake, Nevada
Eugene Hattori

10:00   Just Whose Dam is It Anyway?
David Valentine

10:15   Landscape and Group Identity at The Davies-Johnson Lumber Company Camp.
Amanda Harvey, Michael Baldrica, Carrie Smith, Patrick Zingerella, and Ashley Long

10:30   Break

10:45   Architecture as Archaeology: An Investigation of Two Mormon Farmsteads Through an Anthropological Lens
Kaitlin Hovanes and Anne Oliver

11:00   Forest Afterimages: Ecological Change and the Cultural Politics of Belonging in Great Basin Woodlands
Paul Burow

11:15   Caught in the Limelight: The Teton Basin Lime Kiln
Jennifer Leonard

11:30   There is Nothing in Them Thar Hills: An Assessment of the Strengths and Weaknesses of the Virginia City Sensitivity Model
Margo Memmott

11:45   There Is No Life Without Water: Irrigation in Utah’s Uinta Basin
Stephanie Lechert and Kaitlin Hovanes

12:00   Investigations at Truckee Railyard, California. Two starts, three middles and an end that hasn’t lasted.
Stuart Rathbone
Abstracts

Adams, Kenneth (Desert Research Institute)

Late Pleistocene to Holocene paleohydrologic context of the Bonneville Estates Rockshelter region, Utah and Nevada

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

The waves of Lake Bonneville had long receded from the front porch of Bonneville Estates Rockshelter (BER) by the time the first humans visited the site around 14.2 cal ka. Even though there is little evidence to suggest that humans were around during the dramatic climate changes that led to the filling and desiccation of Lake Bonneville in the late Pleistocene, there were a number of lesser climatic fluctuations in the ensuing 14,000 years that likely did affect the people who occasionally or permanently resided at BER. This presentation attempts to make the case that the variations in intensity of occupation through time are in part a reflection of climatic conditions in the region, which influenced the local hydrology. In particular, many of the periods of relatively intense and prolonged occupation at BER appear to correspond to regionally wet periods that include the Younger Dryas (~13 – 11.5 cal ka), early middle Holocene (~8 – 6.5 cal ka), neopluvial (~3.8 – 3.5 cal ka), and late Holocene episodes centered around 1.8 cal ka and 0.9 cal ka. The inverse is also apparent where periods of sparser occupations correlate to relatively dry episodes that include parts of the early Holocene (~9.5 – 8 cal ka), middle Holocene (~6.5 – 5.5 cal ka), and the Late Holocene Dry Period (~2.8 – 1.8 cal ka). Although correlation does not necessarily imply causation, the correspondence between the temporal pace of occupation at BER and independently dated paleoclimatic events is certainly suggestive.

Adams, Kenneth (Desert Research Institute)

see Wriston, Teresa

Adovasio, James M. (Director of Archaeology Senator John Heinz History Center)

Perishables and Paleoindians Redux: The Role of Nondurable Technology in the Colonization of the Great Basin

General Session (Thursday 1:00 PM-2:30 PM, Alta-Brighton)

Ongoing research demonstrates that perishable industries—notably including the manufacture of textiles, basketry, cordage, netting, and sandals—were a well-established, integral component of the Upper Paleolithic technological milieu in many parts of the Old World. Moreover, extant data suggest that these technologies played a vital and, essentially unappreciated role in the ecological success of all late Pleistocene populations, notably including the first Americans in the Great Basin. Late Pleistocene perishable assemblages from throughout this hemisphere are summarized including the most recent discoveries in the Great Basin. Additionally, this paper explores the varied roles of early fiber technology in the New World and specifically examines the adaptive qualities, impact on social organization, and enhancements to food procurement strategies implicit in this critical series of interrelated industries. It is suggested that the manufacture of
perishable plant fiber-derived artifacts was far more important in the successful colonization of the Great Basin than any of the more often recovered durable artifact classes, particularly stone.

Adovasio, James M. (Director of Archaeology Senator John Heinz History Center)

see Kornfield, Marcel

Agardy, Savanna (Bureau of Land Management)
Barg, Diana (Bureau of Land Management)

Cerberus Collection Lithic Analysis: Results and the Implications of Researching a Looted Collection

Symposium (Thursday 1:00 PM-3:15 PM, Deer Valley)

In 2009, the BLM and FBI conducted Operation: Cerberus Action resulting in the largest acquisition of looted artifacts from the Four Corners Region. Of the 50,000 artifacts relinquished and currently managed by the BLM, over half (approximately 27,000) are chipped stone lithics. To determine the scope of the collection for long-term curation decisions, all chipped stone artifacts were sorted into functional types, described, weighed, measured, and assigned a condition as part of the Cerberus Lithic Sorting Project. Sorting took place over a duration of 6 months, resulting in twenty-two tool types assigned and the analysis of many Paleoindian and other rare projectile point types. Although the lithic portion of the collection is one of the most diverse in the country, research potential is limited due to the nature of acquisition, as provenance, context, and other important data are not available. The collection demonstrates the harmful implications of looting, and although the scientific value is diminished, this collection is still able to yield important archaeological data. In the future, much of the collection will be curated and made available for public access and education, professional research, and exhibition.

Akerson, Fallon (University of Utah)

see Allgaier, Paul

Albush, Cassandra (Bureau of Land Management)

Landscapes and Districts: A Prehistoric Perspective

Symposium (Thursday 3:00 PM-4:30 PM, Powder Mountain-Solitude)

The concept of the archaeological District is most familiar to those working in the field of historic archaeology; however, the concept is equally applicable to prehistoric archaeology as well. This paper will illustrate the importance of the District within the field of prehistoric archaeology, especially in its application to lithic landscapes—areas of toolstone availability continuously used over a long period of time. The District can not only be used as an important management tool, but also as a way to characterize larger behavioral patterns in the archaeological record. To illustrate this point I will be discussing three resources in Nevada located on lands managed by the Bureau of Land Management. Each of these resources has been managed in different ways with varying levels of success.
Allgaier, Paul (University of Utah)
Kuypers, Martijn (Sacramento State University)
Akerson, Fallon (University of Utah)

A Preliminary Analysis of a Discrete Biface Manufacture and Lithic Reduction Locus
Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

As part of a NSF funded project, crews from University of Utah (UU) and California State University, Sacramento (CSUS) surveyed landforms where Prearchaic sites should be found in Grass Valley, Nevada and identified five Prearchaic sites. Subsurface testing of these deposits identified a discrete Prearchaic biface reduction locus, PA-01. In order to elucidate the understanding of this locus, we describe the stratigraphic depositional context of buried surface soils, conduct a preliminary analysis of late stage in-situ bifacial artifacts and associated flakes, and compare the distance from lithic material quarries within the Grass Valley locality.

Allison, James (Brigham Young University)

Hiding in Plain Site: Late Fremont Villages in the Uinta Basin
Symposium (Friday 9:00 AM-11:45 AM, Canyons)

Syntheses of Fremont archaeology in the Uinta Basin of eastern Utah typically emphasize the small and ephemeral nature of Fremont settlements there. Many archaeologists have also argued that much of the Uinta Basin was abandoned by A.D. 1050. It is true that there are many small Fremont sites in the Uinta Basin, and that most of these sites predate 1050. But several large sites have been excavated in the Basin that appear to be villages, some of which appear to date after the supposed abandonment. These have not been emphasized in the syntheses because they are either poorly described or have poor chronological control that has obscured their dating. I review the evidence for the size and dating of several of these village sites, and how their presence should affect our views of Uinta Basin archaeology in general.

Allison, James (Brigham Young University)

see Jepsen, Jacob

Allison, James (Brigham Young University)

see Richards, Katie

Arkush, Brooke (Weber State University)

The Archaeology of Hidden Springs: A Prehistoric Tool Stone Quarry and Habitation Locale in the Birch Creek Valley of Eastern Idaho
Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)
Hidden Springs (10-BT-1972) is a large prehistoric site complex located along the eastern flank of the Lemhi Range overlooking Birch Creek Valley in far eastern Idaho. It consists of a chert and quartzite quarry, an adjacent lithic reduction and camp area (Locus 1), and another habitation area (Locus 2) to the southeast. Weber State University conducted survey and excavation work there in 2017 and 2018, and several radiocarbon dates as well as time sensitive artifacts associated with the Locus 1 deposits indicate that the site was utilized by local Native peoples between approximately 4200 B.C. and A.D. 1800. This paper focuses on tool stone acquisition and early reduction strategies, technological organization, and test excavation results at Locus 2 that focused on several magnetic features identified by ground penetrating radar that may represent prehistoric hearths. Professional archaeological research in Birch Creek Valley dates back to the late 1950s, with most investigations concentrating on shallow caves and rockshelters. Relatively few open air sites have been excavated in this area, and our work at 10-BT-1972 will provide baseline data concerning the roles that foothill ecozones played in ancient human settlement systems of the Birch Creek region.

Armstrong, Trent (Idaho National Laboratory)
Holmer, Marie (Idaho National Laboratory)
Kunz, Ross (Idaho National Laboratory)

Calibration, Sampling, and Statistics in the Analysis of Southern Idaho Volcanic Glass by pXRF

General Session (Thursday 1:15 PM-3:45 PM, Canyons)

Understanding the provenance of volcanic glass artifacts has become a ubiquitous component of archaeological research in southern Idaho, facilitated, in part, by the advent of portable X-ray fluorescence (pXRF) instruments as well as the numerous distinct geochemical types of obsidian found in the region. However, the ability to critically compare and combine results of geochemical studies has been problematic across different pXRF instruments. The matrix-specific calibration of the pXRF instrument at Idaho National Laboratory (INL) by volcanic glass reference samples is evaluated as an approach to address inter-instrumentation variability in data. In addition, a sampling protocol for volcanic glass source locations in Idaho provides a basis to define the geographic extent of geochemical types. This carefully selected sample set is applied to multiple statistical classification algorithms allowing the use of predictive assignments of geochemical type to artifacts analyzed by pXRF of a potentially unknown source location.

Armstrong, Trent (Idaho National Laboratory)

see Cook, Reese

Armstrong, Trent (Idaho National Laboratory)

see Henrikson, L. Suzann

Armstrong, Trent (Idaho National Laboratory)

see Holmer, Nicholas
Ataman, Kathryn (Winnemucca BLM)
Hall, Mark (Winnemucca BLM)
Keach, Levi (Winnemucca BLM)
McGuckian, Peggy (Winnemucca BLM)
Whetstone, Tanner (Winnemucca BLM)
Holleran, Megan

Flying the Fly Canyon Bypass with Satellites, Lidar, and Drones
Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

When on-the-ground survey and metal detecting failed to identify part of an alternate route of the Applegate Trail near Fly Canyon, BLM archaeologists, with the help of volunteers from Trails West and Oregon-California Trails Association, turned to alternative identification methods. Documentary evidence and an historic General Land Office map had indicated a general trail location, but several efforts to find the last remaining piece were unsuccessful. Using satellite imagery, lidar, and drone photography, a possible route was identified, digitized, and transferred to GIS. Following along the possible route using volunteers with and without metal detectors, BLM was able to confirm the location with the discovery of buried artifacts dating to the emigrant period on the Applegate Trail in northern Nevada. The majority of the previously unidentified segment was not visible on the surface, but was clearly visible using a variety of remote sensing methods. This was one of the last remaining significant segments of the Applegate Trail in the Black Rock Desert High Rock Canyon National Conservation Area whose physical location had not been verified on the ground.

Ausloos-Bedinger, Julia (Architectural Resources Group)

see Ringhoff, Mary

Axsom, Jessica (Nevada State Historic Preservation Office)

Districts: A Misunderstood Property Type (or What are Districts?)
Symposium (Thursday 3:00 PM-4:30 PM, Powder Mountain-Solitude)

Districts, as a property type defined within the framework of the National Register of Historic Places is among the least understood. Thus, its use frequently varies from under-utilized to misuse. As Cultural Resources professionals we must lean-in and learn from each other (and the National Register Bulletins) on how to use this property type correctly and effectively. This is symposium will explore the good, bad, ugly, and best of Districts, a misunderstood property type.

Baker, Jeffrey (Redhorse Corporation)
Porter-Rodriguez, Jessica (Redhorse Corporation)

Aboriginal Adobes on Edwards Air Force Base
Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)
Recent work on Edwards Air Force Base has identified fragments of burnt adobe associated with two aboriginal archaeological sites. Previous projects on the base had identified these fragments but were unsure of what the adobe fragments were, simply referring to them as “burnt dirt.” The presence of burnt adobe fragments and the associated deposits has implications for understanding the aboriginal use of the area. Because prior archaeologists failed to properly identify these artifacts, and, because it is unlikely that aboriginal adobe structures in southern California and the Great Basin are limited to the Edwards Air Force Base, this poster will present examples of the adobe fragments identified at Edwards as well as a review of ethnographic literature concerning the types of structures that might have been the source of the burnt adobe.

Baker, Shane (Idaho Power Company)

Rock Ovens of Southern Idaho: Indicators of Immigrant Laborers and Their Ethnicity

Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

The first decades of the 20th century witnessed a rapid rise in the industrialization and development of southern Idaho. A number of large-scale development projects were implemented to harness the waters of the Snake River for both hydroelectric power and irrigation. These undertakings were some of the largest construction projects that the region had ever seen, and organizers quickly encountered manpower shortages that threatened their success. The need for laborers was met in part by recent immigrants of foreign ethnicity who were drawn to the area by the prospects of reliable employment. The remains of unique domed rock ovens at sites in southern Idaho are evidence of these groups. Recent new data suggests a potentially larger range in variability than was previously recognized for these features. Some of the documented variability may offer possible clues to the national origins of the individuals who built and used them, although functional differences also appear to be a variable that should be considered when evaluating and interpreting these unique resources.

Baldrica, Michael (USDA Forest Service, Tahoe National Forest)

see Harvey, Amanda

Barg, Diana (Bureau of Land Management)
Thomas, Nathan (Bureau of Land Management - Utah)

Education and Enforcement: How the Bureau of Land Management is Confronting Looting on Public Lands in Utah

General Session (Saturday 10:00 AM-11:15 AM, Powder Mountain-Solitude)

Looting of archaeological resources on public lands has been an issue throughout the United States for over a century, and Bureau of Land Management (BLM)-administered lands are no exception. Looting can take many forms, ranging from a visitor looking for a souvenir to intense, large-scale, and intentional desecration of sites for personal profit. Looting issues can be exacerbated by the limited on-the-ground resources of federal agencies that manage millions of acres. The proactive actions the BLM is taking against looting has resulted in increased Archaeological Resources Protection Act investigations, the recovery of looted artifacts, and educational
campaigns to curb unintentional, destructive behaviors. The BLM-Utah’s dual approach of education and enforcement illustrates the active role the BLM is taking to reduce looting. The BLM-Utah manages large collections of archaeological artifacts recovered from law enforcement investigations and prosecutions, is currently determining best practices for the long-term curation of recovered artifacts, and is developing anti-looting centered interpretation of the collections. Site stewardship programs, Project Archaeology curriculum, and the Respect and Protect education campaign are major initiatives the BLM-Utah and its partners are using to educate the public about responsible public land use and citizen stewardship of archaeological resources.

Barg, Diana (Bureau of Land Management)

see Agardy, Savanna

Beck, Charlotte (Hamilton College, Emerita)

Jones, George (Hamilton College, Emeritus)

That Other Fluted Point Form in the Intermountain West? It’s Time for a Name

Poster Session (Thursday 2:00 PM-4:00 PM, Bryce Ballroom)

Fluted point studies have dominated the literature in North American Paleoindian archaeology for decades. This is especially true of the east where numerous fluted point forms believed to have derived from Clovis have been defined. Such has not been the case in the Intermountain West, where mentions of fluted points have essentially been of the ‘another Clovis (or Fluted) point from …’ Only in the last two decades has there been any mention of the possibility of a fluted form in that region that may not be Clovis. Even so, archaeologists have struggled with this issue, referring to specimens that appear to be somewhat different from Clovis as ‘Clovis-like’ or ‘Western Fluted’, labels that are confusing at best. In this poster we present the results of analysis of nearly 500 fluted points from the Intermountain West as well as a small number from western California. A comparison with Classic Clovis points from the Plains and Southwest demonstrates that a large number of these points do, in fact, differ in overall morphology from Clovis. We suggest that these points likely derived from, and are thus later than, Clovis, and propose a type name for this different form.

Beck, Charlotte (Hamilton College, Emerita)

From Stewardess to Archaeologist

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

I was late in coming to my archaeology career, having quit college after two years and working as an airline stewardess for the next six. Once I returned to college and discovered archaeology, I knew that was what I wanted to do. I received my PhD from the University of Washington in 1984 and in 1985 began teaching (in a split position with my husband Tom Jones) at Hamilton College in central New York. It was somewhat disappointing to be ‘stuck’ at a small undergraduate college 3000 miles from my research area, but this situation turned out to be perfect for me. Together Tom and I immediately established a field program and eventually created an archaeology major at Hamilton. Over the years I learned the importance of mentoring undergraduate students, sharing my research with them, and acknowledging their contributions through publication. Here I
share my experiences with the hope that they may benefit the new generation of women coming into the discipline.

Beck, Charlotte (Hamilton College, Emerita)

see Jones, George

Bekker, Matt (BYU, Department of Geography)

see Merritt, Christopher

Bettinger, Robert (University of California, Davis)

What White Mountain Projectile Points Tell Us About Great Basin Prehistory

Symposium (Friday 9:30 AM-11:45 AM, Arches Ballroom)

Dating of a White Mountains sample of 2669 time-sensitive projectile points and bifaces on the basis of their stratigraphic relationships to each other and a layer of volcanic tephra tentatively identified as Spencer Wood’s Tephra 2, dating to about A.D. 760, generally confirms the widely accepted late Holocene sequence that goes from Little Lake to Elko to Rose Spring and Eastgate, and finally to Cottonwood and Desert Side-notched, but suggests important differences between Rose Spring and Eastgate, and Cottonwood and Desert Side-notched, and within Rose Spring and Desert Side-notched. These data make at least three things clear. First, merging Eastgate and Rose Spring into a single Rosegate series obscures important culture historic differences; Eastgate ends earlier and is geographically centered in Nevada, west of the White Mountains. Second, Rose Spring Side-notched is later than other Rose Spring types. Third, Cottonwood Triangular is slightly older than Desert Side-notched and Desert Side-notched General points are slightly older than other Desert Side-notched types. The combination of these, and data marshalled by Delacorte showing that Desert Side-notched is earlier in southeastern California than elsewhere, strongly suggesting that Desert Side-notched originated in eastern California via the transference of side-notching from Rose Spring Side-notched type to the Cottonwood Triangular type giving rise to the generic Desert Side-notched General type, the more elaborate Sierra and Delta types evolving later, spreading north and east with the Numic diaspora.

Bird, Darcy (Utah State University)
Freeman, Jacob (Utah State University)
Robinson, Erick (University of Wyoming)

Population Stability in the Great Basin and Across the Globe: a Model on Species Richness

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

Recent analyses of large sample of radiocarbon ages illustrate the potential of these records to investigate general problems in human ecology. While much of the current literature focuses on the relationship between local ecology shifts and population booms or busts, no one has yet to address the general ecological problem of stability. Stability measures the severity of booms and busts in a population/system over time. We propose plant
and animal species richness affects the stability of human population systems. Human population stability is necessary for sustained economic and socio-political growth. We propose a model that describes the effects of species richness on the long-term stability of human societies, controlling for other ecologically relevant variables. We will evaluate this model on a local scale within the Great Basin and on a global scale. In this way, we can then analyze human population stability in the Great Basin within the context of global population stability.

Blong, John (Newcastle University)
Shillito, Lisa-Marie (Newcastle University)
Jenkins, Dennis (Museum of Natural & Cultural History, University of Oregon)

Terminal Pleistocene Foraging Strategies at the Paisley Caves, Oregon

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

The nature of terminal Pleistocene and early Holocene human foraging strategies in the Great Basin has been widely debated, with much of the debate centered on the role of dietary plant versus animal resources—in particular wetland subsistence resources—in foraging behavior. Paleoarchaic-period archaeological sites representing the initial settlement of the Great Basin are typically found near now-desiccated marshlands, and faunal and plant remains from these sites provide evidence for a broad-based subsistence strategy. However, Paleoarchaic lithic assemblages suggest a highly mobile hunting-oriented subsistence strategy. The Paisley Caves in south-central Oregon provide a unique opportunity to investigate human foraging strategies during the first several millennia that humans occupied the northern Great Basin. Excavations at the Paisley Caves led by Dennis Jenkins produced an assemblage of human coprolites from terminal Pleistocene and early Holocene contexts, providing an important resource for a study of individual human foraging behavior during this time. This paper presents the results of pollen, phytolith, and plant macrofossil analyses of terminal Pleistocene and early Holocene coprolites from the Paisley Caves. The goal of these analyses is to test models emphasizing an early broad-based wetland-focused subsistence economy in the northern Great Basin, with the ultimate goal of better understanding the process of initial human settlement of the broader Great Basin.

Blustain, Jonah (Bureau of Land Management)

Too Much of a Good Thing?: Effective Management of Cultural Resources in Areas of Overlapping “Districts”

Symposium (Thursday 3:00 PM-4:30 PM, Powder Mountain-Solitude)

The District is one of the most powerful tools cultural resource managers have to organize related properties, landscapes, and systems; however, the “district” concept is not unique to cultural resources. Properly defined Districts embody the linkage and continuity of the resources they encapsulate, allowing for effective management and defensible decision-making. Improperly defined Districts—or Districts modeled on other management units—muddle significance and scatter commonalities, leading to poor administration and weak policy. Drawing from recent work done by the Bureau of Land Management, Tonopah Field Office, this presentation discusses developing and managing a District outside of Goldfield, Nevada, a culturally sensitive area of overlapping, competing management units.

Bocinsky, Kyle (Crow Canyon Archaeological Center)
Directing the Arrow by Chasing its Tail: Climate, Adaptation, and Future (agri)Cultural Systems in the West

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Archaeology, like all historical sciences, can help us avoid the pitfalls of forgetting the past and being fated to repeat it. Perhaps more pernicious, though, is the risk of missing successes of history, and thus be doomed to *not* repeat the numerous and diverse past triumphs of human cultures. Knowledge of the ecological and agricultural adaptations of traditional societies ought to be a tool in our belts for guiding management going forward. In this paper, I highlight particularly compelling examples of how traditional land management and agricultural practices have delivered positive outcomes for communities and landscapes — direct precipitation maize agriculture of the Hopi of Northern Arizona, and active forest management practices of the Salish and Kootenai peoples of the Flathead Lake region in Montana. I will show how archaeological and paleoenvironmental investigation are demonstrating the long-term sustainability of these systems, and how this knowledge can guide a program of cultural environmental restoration that honors and promotes traditional ecological knowledge (TEK). I will also advocate for the decolonization of the transfer of TEK through land co-management and peer-to-peer engagement among indigenous communities.

Boehm, Andrew (Museum of Natural and Cultural History, University of Oregon)

Taphonomic analysis of faunal collections from Fort Rock and Connelly Caves, Oregon

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

The earliest excavations at Fort Rock and Connelly Caves, Oregon, were conducted in 1938 and 1967, respectively, by Luther Cressman and Stephen Bedwell. During the intervening decades, archaeologists have revisited these sites, with excavations as recent as 2018. Excavations at these sites have produced large faunal assemblages from the Late Pleistocene and Holocene. Although some faunal analysis has occurred, this has been primarily limited to taxonomic identification for environmental reconstruction. Connolly and colleagues recently suggested that the fragmented nature of the Fort Rock assemblage indicate intentional bone breakage by humans. However, a detailed taphonomic study of each site is lacking. This project re-examines the faunal remains from the Cressman, Bedwell, and Connolly excavations to evaluate burning patterns, surface modification, fragmentation, and intentional breakage. The results will provide an increased understanding of the taphonomic history of these Great Basin rock shelters, improving our understanding of human and non-human processes at these sites.

Boomgarden, Shannon (Natural History Museum of Utah)
Metcalfe, Duncan (Natural History Museum of Utah)
Simons, Ellyse (Natural History Museum of Utah)
Jackson, Jared (University of Utah)

Drought Related Site Distribution of Prehistoric Irrigation Farmers

Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)
Range Creek Canyon is a rugged and remote canyon located in the West Tavaputs Plateau in east-central Utah. The 145 square mile watershed is drained by Range Creek, a perennial tributary to the Green River. The University of Utah Archaeological Field School has been documenting the remarkably intact record of the Fremont occupation of the canyon between about A.D. 900-1200. The overarching goal of the research is to explore the adaptations of arid-land foragers and farmers within the broader context of Southwestern prehistory. Integrated archaeological, experimental, and paleoenvironmental investigations suggest that farming was an important source of food and would have required using the water in Range Creek for irrigation. Several years of measurements of the stream flow in Range Creek document the spatial and temporal variation in stream flow during the growing season. In the summer of 2018, due to successive poor snow packs and general drought conditions, sections of the creek channel dried up completely due to a drop in the alluvial water table. For farmers reliant on surface irrigation, low stream flow may have constrained farming activities; the lack of stream flow would have curtailed all farming. We compare stream flow measurements with the 2018 dry reaches of the creek, and both with the known density and distribution of Fremont archaeological sites. Not surprisingly, the Fremont chose to locate themselves in sections of the canyon with the most reliable surface water.

Boomgarden, Shannon (Natural History Museum of Utah)
Simons, Ellyse (Natural History Museum of Utah)

Costs and Benefits of Fremont Food Storage: Granary Construction Experiments in Range Creek Canyon
Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

Food storage is an important adaptive strategy among many organisms faced with seasons of resource scarcity, including humans. Over 100 Fremont granaries and storage cists have been recorded in Range Creek Canyon. A permanent field station in the canyon provides a unique opportunity to study the relationship between time spent in granary construction and how well they protect the stored food from non-human competitors such as rodents, insects and fungi. Over the last three years, students in the University of Utah Archaeological Field School have constructed small scale replicas of prehistoric granaries recorded in the canyon. Construction techniques and raw materials were manipulated to provide variation in the cost of granary construction. These costs were measured as amount of time it took to acquire the raw materials as well as to construct the granary. Relative benefits were measured as the length of time that elapsed before non-human competitors breached the granary and pilfered the stored maize. Our third experiment focuses on the time of year granaries are filled. The results of this research are presented, and avenues for future work outlined. Since the broad environmental setting of the canyon has remained relatively unchanged, these results have direct implications for modeling the costs and benefits of Fremont storage in Range Creek Canyon. More important, they illuminate the broad categories of costs and benefits associated with food storage in general.

Boomgarden, Shannon (Natural History Museum of Utah)

see Haisley, Cody

Boomgarden, Shannon (Natural History Museum of Utah)

see Simons, Ellyse
Boyd, Joshua (Alpine Archaeological Consultants)

*Does scraper technology predict group size?*

Symposium (Thursday 1:00 PM-3:15 PM, Deer Valley)

In this paper I explore lithic scraper technologies and how these may predict intra-group population size. Formalized end scrapers versus informal or plain unifacially retouched flakes are found discordantly through time and space. Acknowledging functional differences these technologies possess, this research hypothesizes that certain scraping technology preferences predict intra-group population sizes. Provisioning individuals with leather products (i.e. clothing, bedding, shelter, and other utilitarian items) requires a deficit of labor and processing time. As intra-group size increases, the value of efficient scraping tools is heightened and a premium will be placed on formalized end scrapers. On the other hand, provisioning a small group of people decreases the value placed on efficient scraping tools and plain scraping edges on retouched flakes will be more common. Using data from CRM excavation reports in the Great Basin and its periphery this research helps to illustrate the relationship among labor, resources, and population.

Bradshaw, Ryan (Sacramento State)
Kuypers, Martijn (Sacramento State University)
Zeanah, David (California State University, Sacramento)

*Interpreting a Buried, Paleo-Indian, Open-Air Site in Grass Valley, Nevada*

Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

Current views of the Pleistocene-Holocene Transition draw heavily from investigations of sites near pluvial lakes in the eastern and western Great Basin. The record from the Central Great Basin remains impoverished, largely due to the limited number of stratified archaeological sites containing well preserved material suitable for faunal analysis and radiocarbon dating. Recent investigations of an open-air site (26La4434) along the northern shore of Pleistocene Lake Gilbert in Grass Valley, revealed a buried deposit with preserved organic material, obsidian artifacts and Paleo-Indian time-markers. Here we report on ongoing investigations examining the stratigraphy, chronology, assemblage, and faunal remains recovered from the site. While faunal remains reflect procurement of a broad array of prey including waterfowl, large mammal hunting was clearly an important activity. The site appears to represent at least two spatially discrete, single component campsites positioned to facilitate an intercept hunting strategy, as well as access to wetland habitats.

Branch, Sarah (ASM Affiliates)

*Bypassing the Bonanza: History and Archaeology in the Silver King Mining District, Lincoln County, Nevada*

Symposium (Friday 1:30 PM-5:00 PM, Alta-Brighton)

The history of silver mining in Nevada is typically viewed through the lens of the big bonanzas, but for every Comstock Lode, there were many smaller discoveries, each developed in hope of starting the next rush. Discovered at the end of Pioche's boom, the Silver King Mining District offered the early promise of adding to
the silver wealth of the Silver State – a promise that a remote location, variable ore quality, and falling silver prices kept it from fulfilling. Today, the district offers us wealth in the form of archaeological data which, when combined with the information gleaned from extensive archival research, provides a unique view of over half a century of small-scale silver mining in a district that seemed perpetually on the cusp of more. As part of Round 9 of the Lincoln County Archaeological Initiative, ASM Affiliates developed and tested a historic context for the Silver King Mining District, resulting in the identification of nearly 200 mining and habitation features associated with the newly-defined Silver King Mining District Archaeological District. This paper presents the results of the research and fieldwork conducted by ASM and provides an overview of the history of the district and the individuals who lived and mined there.

Branch, Sarah (ASM Affiliates)

Boarding Houses, Baking Powder, and Your Favorite Prescription: Advertising and Consumer Culture at Silver King Mining District, Lincoln County, Nevada

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

The Silver King Mining District in northern Lincoln County was discovered and developed at the end of the 19th century – a period when changes in advertising and the growth of consumer culture were altering many aspects of everyday life. Despite the rise of mass produced goods and competing brands, consumer choice in remote areas was still largely controlled by what was stocked at local markets. For Silver King, a mining district without its own town to support it, the closest “local market” and nearest supply center was Pioche, nearly 40 miles away. Fieldwork conducted by ASM Affiliates as part of Round 9 of the Lincoln County Archaeological Initiative identified a wide range of “name-brand” products used by the residents of Silver King, many of which were also advertised in the Pioche newspaper. This poster examines the role that advertising played for the residents at Silver King, both in the products they chose to purchase and in the ways they promoted their own interests.

Branch, Sarah (ASM Affiliates)

see Estes, Mark

Brewster, Melvin (Co-Chair)
Xochime, Citlalin (University of Nevada, Reno)

Numu Origins I: Rethinking Numu Antiquity III

Symposium (Friday 2:00 PM-4:00 PM, Powder Mountain-Solitude)

This symposium brings together Academic Authors, Students, and Tribal Historic Preservation Professionals. Part I is Numu Origins I: Rethinking Numu Antiquity III, Which brings together Academics and others that share in the Numu In Situ Hypothesis that the People have always been in place. Part II Numu Origins: Numic Roundtable Provides Individuals a chance to voice their concerns about a Diverse Range of Issues important in Native Heritage Preservation Activities within the Numic Speaking Area of the Great Basin and Neighboring Geographic Areas.
The analysis of aDNA from archaeological faunal material has opened new windows into a range of important issues involving the relationships between past peoples and animals. Developed primarily over only the last two decades, zooarchaeological applications of aDNA analysis have been used to address a range of issues, from tracking prehistoric human movement and dispersals to the reconstruction of temporal trends in prey population sizes in relation to both human hunting and climate change. Few such studies, however, have been conducted in the Great Basin. In this paper, I review the scope of aDNA studies in zooarchaeology in general and highlight both traditional and emerging issues in Great Basin prehistory to which the approach could be fruitfully deployed.

Broughton, Jack (Department of Anthropology, University of Utah)

A synthesis of fire history across the West Desert, Utah for the last ~20,000 years

In collaboration with archaeologists from Dugway Proving Ground, our team has collected several cores from springs and playas across the West Desert region of Utah. These cores were collected to reconstruct the past environmental conditions for the last 15,000+ years to better understand the resources that may have been available to prehistoric inhabitants of the area. The focus was to understand the timing and geography of various archaeological sites in conjunction with the paleoenvironment. The research presented here examines the fire history records generated from the various cores across the basin. We present a summary of the fire history for the last 20,000 years as well as address the potential role of humans on the fire regime in the West Desert region.

Brunelle, Andrea (University of Utah)

see Jones, Kaylee
Bryce, Joseph (Silver City Museum)

Decorative Variation in Wolf Village Ceramics

Symposium (Friday 9:00 AM-11:45 AM, Canyons)

Six seasons of excavation at the Fremont site Wolf Village resulted in the recovery of over 56,000 ceramic sherds. The majority of these are plain grayware sherds, but over 6,000 sherds are decorated in some form. Decoration includes black-on-gray, Red-on-gray, surface manipulation, applique, corrugation, and fugitive red coating. Several of these types are the largest known collection of their kind. This paper provides a brief introduction to each type and what the peculiarities of the Wolf Village assemblage can do to expand our knowledge of each. Information is also provided for vessel and temper types to illustrate the importance placed on certain decorative sites and how the Fremont of Wolf Village may have provided for their decorative needs.

Bullard, Thomas F. (Desert Research Institute)

see Young, D. Craig

Bunch, James (Eetza Research Associates)

see DeBunch, Patricia

Burns, Gregory (University of California, Davis)
Eerkens, Jelmer (University of California, Davis)

Isotopic Sourcing of Olivella Beads in the Great Basin

General Session (Thursday 1:15 PM-3:45 PM, Canyons)

Olivella beads were important in long-standing trade between coastal California and the Great Basin. Studies of interactions between different coastal and Basin regions have used Olivella species identification, bead types, and location of major coastal production workshops to determine likely trade networks. We employ isotopes of carbon and oxygen to determine the coastal sources of Olivella beads from the western Mojave, Owens Valley, and Gatecliff Rockshelter. Isotopic results support previous interpretations that Central California beads entered the Great Basin but were not traded south into Owens Valley. Beads from Southern California were present in all three locations.

Burow, Paul (Yale University)

Forest Afterimages: Ecological Change and the Cultural Politics of Belonging in Great Basin Woodlands

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

Repeat photography, the process of taking photos of the same subject from the same location over time, is a commonly used method to make arguments about landscape change. This paper analyzes forest before-and-after images as a form of discourse, and an empirical standard of evidence, that shapes canonical ideas about
ecological change in Great Basin woodlands. Analyzing published and unpublished photos series, combined with selected site visits, I argue that the marked after-image, and its enframing in texts through titles, captions, and image formats, is convincing as evidence because it triggers an affective response in the viewer, manifesting particular feelings about landscape change (sometimes positive, sometimes negative). I link these affective experiences to the politics of belonging by asking: How does repeat photography shape claims about what people, plants, and animals belong on the landscape? I approach the question of belonging through the lens of cultural politics of nature, or how natural landscapes become sites of political struggle. Rather than offering a purely objective argument about ecological change, forest afterimages are better understood as discursive projects tied to particular visions of landscape change that separate nature and culture by obscuring human action. As human communities vie over their stake in landscapes undergoing rapid change, I aim to engage the rhetorical and political impacts of approaching change over time through images.

Byerly, Ryan (Far Western Anthropological Research Group, Inc.)
Young, D. Craig (Far Western Anthropological Research Group)

Black Rock Archaic: Recent Test Excavations at Trego Hot Springs, Pershing County, Nevada

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

Far Western recently completed National Register evaluative test excavations at Loci D and E at Trego Hot Springs (26Pe118). This paper presents the results of this work, which identified two archaeological components dating between the late Middle Archaic and terminal Late Archaic periods. Assemblage data are compared to other Archaic localities in the area of the Black Rock Desert to expand upon current archaeological perspectives, and provide guidance for further analyses.

Camp, Anna (Nevada State Museum)
Brown, Maggie (Nevada State Museum)

Buckaroos and Baskets: Stylistic Choices of Native Basket Makers in the Great Basin

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

The ways in which Native Americans responded economically to rapid changes brought on by colonialism varied throughout the West. In the Great Basin, the Shoshone, Paiute, and Washoe people often went to work at ranches doing general labor, cleaning, cooking, or herding cattle. Through the examination of ethnographic basketry from the Nevada State Museum collections, we look at how the transition from hunting and gathering to working on ranches is reflected in these objects. Minor changes in some decorative and functional elements of basketry such as the reuse of leather boots, chaps, belts, and horse hair mecate reins, demonstrates the resilience and innovation of Native American weavers during this time and their ability to make do despite the changing circumstances brought on by Western expansion.

Cannon, Kenneth (Cannon Heritage Consultants)
Reid, Kenneth (Retired Idaho State Historical Society)
Cannon, Molly (Utah State University Museum of Anthropology)
Pederson, Joel (Dept of Geology Utah State University)
Finding Bia Ogoi: The Application of Historic Documents and Geomorphology to the Understanding of 19th Century Landscape Change of the Bear River Valley, Franklin County, Idaho

Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

On the frigid morning of 29 January 1863 the California Volunteers under the command of Patrick Connor attacked the Shoshone village at Bia Ogoi in response to ongoing hostilities between whites and Native groups. The result was the death of at least 250 Shoshone, many of them women and children, and 21 soldiers. Over the course of the past 150 years extensive landscape modification has occurred from both natural and human agents obscuring the events of this fateful day. A major focus of a recent NPS-funded study was the reconstruction of the 1863 landscape. This effort employed not only traditional on-the-ground geomorphic studies, but also a series of historic documents and maps based upon first hand experiences. We will present the methods employed in this study to describe a changing landscape and its implications for the archaeological study of the Bear River Massacre events.

Cannon, Kenneth (Cannon Heritage Consultants)

see Santarone, Paul

Cannon, Molly (Utah State University Museum of Anthropology)

Connecting communities through applied archaeology

Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

In this paper, I engage the audience with a discussion on the role of applied archaeology in community outreach using our recent work at the Bear River Massacre Site as an example of applied archaeology for contemporary issues, advocating for indigenous ownership of both narrative and physical spaces, settings that helped to shape those narratives, by placing power of interpretation within the Shoshone community. Our experience working at the Bear River Massacre Site affords an opportunity to offer archaeological research and results for contemporary management issues at the site, documenting historic geomorphic processes for landform stabilization and restoration, informing on historic vegetation community structures, recontextualizing inequitable historic accounts of events. Results of our collaborative work with tribal, federal, state and private institutions realize the empowerment in connecting communities for cultural resource management, bringing attention to one of our nation’s most devastating conflicts between indigenous groups and western settlement.

Cannon, Molly (Utah State University Museum of Anthropology)

see Cannon, Kenneth

Cannon, Molly (Utah State University Museum of Anthropology)

see Simms, Steven

Catacora, Andrea (ASM Affiliates, Inc.)
see Estes, Mark

Clay, Vickie (Far Western Anthropological Research Group)

see King, Jerome

Codding, Brian (University of Utah)

see James, L. Brock

Codding, Brian (University of Utah)

see Magargal, Kate

Codding, Brian (University of Utah)

see Pavlik, Bruce

Codding, Brian (University of Utah)

see Vernon, Kenneth

Codding, Brian (University of Utah)

see Yaworsky, Peter

Coe, Marion (Texas A&M University, Center for the Study of the First Americans)

Diachronic Analysis of Basketry and Cordage from Bonneville Estates Rockshelter, Nevada

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

This presentation is a diachronic analysis of a collection of basketry, cordage, and related manufacturing waste from Bonneville Estates Rockshelter, an archaeological site in the eastern Great Basin. Perishable artifacts can address the timing and changes in technology in the Bonneville Basin, the seasonality of site occupation, use, and artifact manufacture. Additionally, they can address the relationship between people and the environment, as well as complex human social interaction. Changes in basketry foundation manufacture and an emphasis on small-game net hunting throughout the Holocene at Bonneville Estates Rockshelter emphasizes the importance of considering community participation in activities at the site. This presentation demonstrates the efficacy of applying simple statistics and adopting a chaîne opératoire approach to technological organization in this complex material class, and it suggests that a combination of technological and functional stylistic attributes may characterize the complex ways gender influences the manufacture and use of a material class traditionally associated with women's work in the eastern Great Basin.
Discriminating between morphologically similar species often presents challenges to zooarchaeologists interested in making archaeofaunal identifications from fragmentary remains. Researchers have used morphometric approaches in concert with statistical clustering techniques, such as linear discriminant function analysis (LDA) and principal components analysis (PCA), to overcome this problem. While effective, these approaches are limited by their inability to interpolate and use missing data effectively. To overcome this shortcoming, we compare LDA, QDA (quadratic discriminant function analysis), and PCA to a Random Forest algorithm machine learning methodology that is able to interpolate and use missing data effectively, while also highlighting the reproducibility of the analyses produced in R. We use examples from the small mammal fauna from Abrigo de los Escorpiones, Baja California, to evaluate these methods. With the advent of powerful personal computers and open source statistical software, utilizing machine learning to perform archaeofaunal identifications is now possible and affordable, and may serve as an invaluable addition to the zooarchaeologist’s toolkit.

Coltrain, Joan (University of Utah)

The Accidental Archaeologist

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

Mentoring was and remains the key ingredient in my academic experience. Here I outline my path to a career in molecular bioarchaeology, highlighting the vital role of crucial senior researchers as I embarked on a graduate degree in Anthropology, preceded only by an undistinguished undergraduate experience in the Humanities. Mentoring carried me forward providing support and occasionally painful guidance at each juncture. Investments of this type cannot be repaid. They can only be passed forward as we become senior researchers and assist others in reaching their academic goals. Recent collaborations with graduate students are highlighted as well as the vital role of a geochemist, biologist and several prominent Great Basin archaeologists whose mentoring remains entirely unforgettable.

Connolly, Thomas (University of Oregon Museum of Natural and Cultural History)

Symposium Discussant

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

Cook, Reese (Idaho National Laboratory)
Holmer, Nicholas (Idaho National Laboratory)
Armstrong, Trent (Idaho National Laboratory)
Defining Southern Idaho’s Terminal Pleistocene Cultural Landscape through Volcanic Glass Source Analysis

General Session (Thursday 1:15 PM-3:45 PM, Canyons)

Through the use of a precision-calibrated portable x-ray fluorescence (pXRF) machine, the Idaho National Laboratory (INL) Cultural Resource Management Office (CRMO) is generating a comprehensive dataset of volcanic glass sources from southern Idaho and its periphery. These efforts will help identify the sources associated with a plethora of terminal Pleistocene projectile points recovered from the INL and surrounding lands managed by BLM. Based on preliminary results, significant differences exist between volcanic glass sources utilized during the TP/EH and those represented in Holocene assemblages. This suggests that land use patterns in the region may have changed during the onset of the Holocene to correspond with shifts in available resources and an expanding seasonal round. The results of this study has the potential to greatly expand our knowledge of TP/EH human movement and interactions well beyond the Pioneer Basin.

Cook, Reese (Idaho National Laboratory)

see Henrikson, L. Suzann

Cook, Reese (Idaho National Laboratory)

see Holmer, Nicholas

Corn, Tyrone (Idaho Power Company)

see Santarone, Paul

Crabtree, Stefani (Penn State University)

Using the Power of Computer Simulation to Uncover the Past

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Archaeology is not just the study of a past that has been discarded and abandoned, it is the study of how the trajectory of humanity has led to where we are today. Modern methods can harness the explanatory power of the past to calibrate our understanding of the present and predict how we will face challenges in the future. In this vein the tools of agent-based modeling and network science prove particularly promising. By simulating societies in silico agent-based models and networks have enabled researchers to not only understand previously intractable aspects of the past, but also to use these simulations to predict what can make resilient societies and what lead them toward vulnerabilities to external perturbations. These approaches are ripe for understanding both societies and ecosystems in the Great Basin. In this talk I explore the unique ways that computational approaches can help us understand the lifeways of societies in the Great Basin in the past, and also suggest that
understanding how people interacted in this unique environment can provide parallels to understanding such large issues like the human impacts of climate change today.

Cromwell, R. Patrick (University of Nevada, Reno)

Modeling Settlement Patterns in the East Chewaucan Basin: applying Human Behavioral Ecology Models to the Archaeological Record

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

The Chewaucan Basin of Eastern Oregon contains the earliest known site of human inhabitation in the state of Oregon: Paisley Caves. I will be examining changes in settlement patterns from the Early through Late archaic periods in the Chewaucan Marsh and Lake Abert Basins through the use of two distribution models. Ideal Free Distribution (IFD) and Ideal Despotic Distribution (IDD). These models use ranking of resources in relation to possible settlement locals to predict desirability of colonization. I will compare the predictions of the models to the archaeological evidence of settlement changes through time in the area. By using these models I can make interpretations about settlement ranking through comparison of the presence/absence of cultural hierarchical pressures and how that conforms to evidence in the archaeological record.

Davis-King, Shelly (Davis-King & Associates)
Younie, Angela (Far Western Anthropological Research Group, Inc.)

Salt of the Earth: Salt Manufactory in the Sierra

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

Salt is among the more rare and precious commodities for most of human history. Its thousands of uses in food preservation and flavor, doctoring, processing game, cleansing, and more make it desirable and essential. Wars have been waged to gain access to salt, salt has been used as money or in other exchange, and in parts of the world states formed around the development of salt monopolies. Landscapes associated with the processing of salt and its distribution centers are found in ancient America and it is known to form the basis of major economies. It has been described ethnographically in many sources and was isolated as an important commodity in the Cultural Element Distribution studies of the western Great Basin. Acquisition methods are varied and include seaweed, shellfish, burning of salt grass, dehydrating mineral springs, and using salt springs. This paper takes a look at some recent research on granitic salt evaporation basins, known in the scientific literature for more than 140 years. Some of these appear to have been made by the Washo for salt manufacture and have been found associated with salt springs in at least four locations.

de Dufour, Karyn (Nevada State Historic Preservation Office)

When is a District?

Symposium (Thursday 3:00 PM-4:30 PM, Powder Mountain-Solitude)

The National Register of Historic Places recognizes five property types for inclusion in the register: buildings, structures, objects, sites, and districts. While most archaeologists are familiar with the “site” property type, the
“district” property type, while under-utilized, is applicable for pre-historic and historic archaeological resources as well. Just as Watson Smith’s seminal 1952 essay “When is a Kiva” called for a more subtle understanding of typology and context when identifying Southwestern kiva’s; a similar approach is needed with the application of the District property type. This presentation will discuss the benefits of the district property type, its unique vocabulary, and will provide tips on how to recognize and record archaeological districts for inclusion into the Nevada Cultural Resources Inventory System (NVCRIS).

DeBunch, Patricia (Eetza Research Associates)
Bunch, James (Eetza Research Associates)
Gruhn, Ruth (Retired)

Early Test Excavations at a Cave in Nevada’s Black Rock Desert

General Session (Thursday 1:00 PM-2:30 PM, Alta-Brighton)

Doctors Ruth Gruhn and the late Alan Bryan, professors of anthropology at the University of Alberta, Canada in their quest to pursue early man studies in America, were invited by the late Don Tuohy, curator of Anthropology of the Nevada State Museum to scope out a cave to excavate located in the Black Rock Desert in Nevada. This cave was given the name of Handprint Cave because of pictographs in the shape of “hand-prints” located in the interior of the cave. Despite minimal testing during the summer of 1987, the cave yielded two rich periods of occupation spanning from 4480+/-105 and 10,740 +/- 70 years B.P. Results of the excavation were published in a short article in the Nevada Archeologist in 1988. This important site has been largely overlooked and in this presentation Patricia DeBunch, James Bunch and Dr. Ruth Gruhn will review and summarize those early efforts.

DeGraffenried, Jennifer (Department of Defense Dugway)

see Brunelle, Andrea

DeGraffenried, Jennifer (Department of Defense Dugway)

see Jones, Kaylee

DeRose, Justin (Forest Inventory and Analysis, Rocky Mountain Research Station)

see Finley, Judson

Dolinar, Justin (University of Utah Department of Anthropology)

An analysis of Holocene hunter-gatherer plant use at Alm rockshelter, Wyoming.

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

The shift to dietary plant use among Holocene hunter-gatherers in the Great Basin is becoming better understood (e.g., Rhode and Louderback 2007; Herzog and Lawlor 2016). Yet our understanding of dietary plant use in neighboring North American contexts remains inadequate. Pursuing studies in other regions offers to...
enhance our understanding of the timing and the ecological and/or social pressures associated with dietary plant use. This project, therefore, examines plant use at Alm Rockshelter (48BH3457) in the Bighorn Basin of Wyoming. The central question is whether climate or human population densities (or a combination thereof) were drivers of dietary plant use at Alm Rockshelter during the Holocene. Kelly et al. (2012) and Ostahowski & Kelly (2014) infer a relationship within the Bighorn Basin of Wyoming where periods of cooler temperature and higher effective moisture depict increases of human population densities whereas periods of warmer temperature and higher effective moisture depict decreases of human population densities. Using Optimal Foraging Theory, one could predict that increased seed use will correlate with drier climates or increased human population densities. If drier climates are responsible for the dietary shift to increased seed use, then one would also expect that terrestrial plants would be more abundant than aquatic plants during periods of higher temperature and/or increased human population density. These predictions are tested by analyzing plant remains collected from 28 hearth features excavated from Holocene deposits at Alm Rockshelter.

Duke, Daron (Far Western Anthropological Research Group)

Change Through Time and Human Experience in the Paleoindian-Era Great Basin

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

The Paleoindian period represents some 4,000 years at the Pleistocene-Holocene transition. This climatically dynamic time provided both the opportunity and challenge for people living in the Great Basin. Archaeological and paleoenvironmental data suggest that life would have been quite different from the era’s beginning to end, as the cooler and wetter situation folks were initially presented with gave way to relentless warming and drying. The temporal details of this transition remain a long-term endeavor, but the environmental fundamentals are well-established. This presentation emphasizes the trajectory of change as an available and vital means of asking important behavioral questions about the human experience in the Paleoindian era, something Great Basin archaeologists are uniquely suited to address.

Duke, Daron (Far Western Anthropological Research Group)

see Roberson, Joanna

Duke, Daron (Far Western Anthropological Research Group)

see Rogers, Alexander

Eckerle, William (Western GeoArch Research)

Geoarchaeology of the Northern Goshute Basin, Nevada: Pluvial Lake Waring Draw-Down History, Environment, and Occupation History

General Session (Thursday 1:00 PM-2:30 PM, Alta-Brighton)

An archaeological investigation of the northern Goshute Basin, Nevada occurred in conjunction with permitting the Long Canyon Mine on BLM managed lands in Elko County. Western GeoArch Research LLC (WGR) assisted
ASM Affiliates by providing geoarchaeological investigations. The basin housed Lake Waring, the fourth largest Great Basin pluvial lake, during the Pleistocene. Optically stimulated luminescence dates on buried foreshore and beach deposits plot lake recessional history. Shoreline deposit OSL ages are compared to mostly surface/near-surface cultural radiocarbon and obsidian hydration dates. Site occupancy is contrasted to Lake Waring shoreline position. Environmental and cultural history are examined. A site burial and preservation model is discussed.

Eerkens, Jelmer (University of California, Davis)

see Burns, Gregory

Ellis, Kelsey (Brigham Young University)

A Closer Look at Fremont Textile Production: Spinning and Whirling

Symposium (Friday 9:00 AM-11:45 AM, Canyons)

In the Southwest region we have great evidence of Ancestral Puebloan weavers. Battens, broken looms, loom weights, textile fragments, and intact spindle whorls have been found over the last several decades adding to our knowledge of textile production in the Southwest. Comparatively, in the Fremont region, we have little evidence of these things except several examples of a few surviving textile fragments. My paper gives a comparative study of known spindle whorls used in the Southwest with the potential spindle whorls within the Fremont region. My research seeks to create and understand spindle whorl characteristics, by looking at central holes, diameter variations, roundness, and weight. This paper reports experiments recreating spindle whorls from ceramic sherds and using them to spin various materials found in the Fremont region, such as hair, milkweed, and sagebrush.

Elston, Robert (University of Nevada, Reno)
Kuypers, Martijn (Sacramento State University)

Preliminary Comparison of Paleoindian Sites 26LA781 (Knudsen site) and 26LA4434 in Grass Valley, Nevada

Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

Preliminary analyses of landscape position and lithic assemblage composition suggest these two sites differ in convenience to resources (toolstone, wetlands, large animals, travel routes), emphasized different task sets, and served different functions. Our findings here comprise hypotheses to be tested in further studies of biface stage and faunal remains from 26LA4434, as well as debitage type and tool use-wear at both sites.

Elston, Robert (University of Nevada, Reno)

see Vernon, Kenneth
In 1960, a private donor gave an archaeological collection to the University of Oregon Museum of Natural and Cultural History (MNCH) that she and her father had excavated in 1957 from a rockshelter north of Silver Lake, subsequently identified as 35LK53. It included human remains and artifacts, some of them burial-associated, along with detailed documentation of their context. Stratigraphy and artifacts suggest a pre-Mazama age and Western Stemmed Tradition association for the burials. The human remains and associated artifacts, including a chert crescent and several spire-removed Olivella beads, were transferred in 1998 to the Bureau of Land Management for repatriation to the Klamath Tribes. We summarize what is known about the stratigraphy, age, and nature of the 35LK53 assemblage.

Erlandson, Jon (University of Oregon Museum of Natural and Cultural History)

see Endzweig, Pamela

Erick, Mary (Utah State University)

Obsidian Sourcing and the Origins of the Black Mountain Redoubt Site, Wyoming

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

Projectile points are one of the few artifacts present on the surface of archaeological sites that may also serve as a diagnostic of the site’s relative age. A shift in the archaeological record can be seen through changes in projectile point technologies between the Late Archaic and the Historic periods in northwest Wyoming. The exact causes of these changes are unknown. This time period also saw a decrease in the diversity of obsidian found at local sites. The Black Mountain Redoubt site, located in the Washakie Range at 8200 feet, contains diagnostic projectile points including Late Archaic, Rose Springs, and Desert Side Notch indicating the site is multi-component. However, projectile point types like Rose Spring and Desert Side Notch have wide chronological ranges, making it difficult to date archaeological sites where only these types are present. Through experimental archaeological comparison of the obsidian assemblage from the Black Mountain Redoubt site, I answer questions about technology, mobility, exchange, and migration in the Central Rocky Mountains. This poster explores the preliminary data collected using X-ray fluorescence (XRF) to examine similarities and differences between the debitage versus the projectile points via analysis of geochemical composition.

Ermish, Brendan (Portland State University)

see Simons, Ellyse

Eskenazi, Suzanne (Logan Simpson)
Symposium Discussant

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

Estes, Mark (ASM Affiliates, Inc.)
Catacora, Andrea (ASM Affiliates, Inc.)
Branch, Sarah (ASM Affiliates)

*Red Writings on the Walls: the Pictographs of Salt Cave and Surrounding Sites*

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

Salt Cave near Fallon, Nevada is covered in hundreds of red-painted pictographs, yet is relatively unknown outside the local area. It and an adjacent shelter were first noted in a 1936 Reno Evening Gazette article and later reported on in Heizer and Baumhoff’s seminal volume on rock art; however, despite over 80 years of archaeological visitation, these shelters have never received detailed site recordation. In 2017, ASM Affiliates, Inc. recorded four pictograph-bearing cave and rockshelter sites in great detail using digital photography and post-processing using D-stretch software. Results indicate small artifact assemblages, repainted motifs, “hidden” motifs painted on blackened walls, as well as intensive visitation and vandalism. Similar style pictographs have been recorded in nearby locations and can provide interesting points of comparison.

Ferguson, Jeffrey (University of Missouri, Columbia)

*see Jepsen, Jacob*

Finley, Judson (Utah State University)
Robinson, Erick (University of Wyoming)
DeRose, Justin (Forest Inventory and Analysis, Rocky Mountain Research Station)
Hora-Cook, Elizabeth (Utah State Historic Preservation Office)

*Multi-Decadal Climate Variability, Safe Operating Spaces, and the Fremont Agricultural Transition in Northeastern Utah*

Symposium (Friday 9:00 AM-11:45 AM, Canyons)

The Fremont agricultural transition took place during a ~1,000-year period providing an opportunity to critically examine the environmental context of this important global process. We develop a 2,115-year precipitation reconstruction based on tree-ring widths and compare it with a Bayesian age model of 41 radiocarbon ages from the Cub Creek Archaeological District in Dinosaur National Monument. Cub Creek is one of several locations in the northern Uinta Basin where Archaic foragers adopted an essentially Basketmaker cultural pattern that fluoresced into major pithouse villages and rock art galleries ca. AD 750-1050. We use the concept of variance reduction safe operating spaces (VRSOS) to explain the Fremont agricultural transition and suggest that low-level agriculture was a successful adaptation to multi-decadal precipitation variability with a periodicity of ~80-120 years. In this context, periodic droughts are necessary to promote resilience in socioeconomic systems making times of extreme variability, such as the Medieval Climate Anomaly (MCA), non-events in Fremont society. We suggest that reduced precipitation variability is the tipping point that increases maize production.
initiating agricultural intensification and resulting in increased population, development of pithouse communities with storage features and formalized ground stone and ceramic technologies.

Finley, Judson (Utah State University)

see O’Rourke, Makaela

Finley, Judson (Utah State University)

see Wurster, Bethany

Fisher, Jacob (Sacramento State)

Economic Intensification and Seasonality in the Alpine Zone, White Mountains, California

Symposium (Friday 9:30 AM-11:45 AM, Arches Ballroom)

With the shift towards more intensified, residential use of the alpine zone of the White Mountains circa 1350 BP, sites presumably were occupied for longer periods of time than during the earlier, logistical use of the region. This should be reflected in seasonality studies of archaeofaunal assemblages, evaluated here using a two-pronged approach: age profiles of bighorn sheep and marmots based on epiphyseal fusion, and the relative abundance of bighorn sheep, marmots, and leporids due to their differing adaptations to the cold season. While these methods lack desirable precision, the results suggests a shift from mid-summer logistical use, to a late summer and early fall residential use after c. 1350 BP. This change in the timing of occupation most likely reflects the scheduling conflicts brought forth by intensified use of low return plant resources at lower elevations.

Flanigan, Tom (University of Utah, Uinta-Wasatch-Cache National Forest)

Decisions in the Desert: An Application of the Field Processing Model to Lithic Toolstone Procurement

Symposium (Thursday 1:00 PM-3:15 PM, Deer Valley)

Models generated under the umbrella of behavioral ecology have the potential to elucidate and provide an explanatory framework for human behavior utilizing lithic technology, which is the most ubiquitous and often confounding artifact class found throughout the Great Basin. This study looks at a suite of archaeological sites found in and around the Sheeprock Mountains, located in the West Desert of Utah. The study investigates the tradeoffs between lithic procurement, processing, and transport distance, through the quantitative analysis of lithic artifacts, geological obsidian sourcing, and the Field Processing Model (FPM).

Fletcher, Beatrice (McMaster University)

see Holcomb, Justin

Fornelli, David (California State University, Los Angeles)
If these bones could talk: what do faunal remains tell us about the groups who occupied Resurrection Shelter and Sleepy Hollow Rock Shelter at Darwin Wash, Naval Air Weapons Center, China Lake.

Symposium (Saturday 9:00 AM-10:45 AM, Snowbird)

Resurrection Shelter (CA-INY-2844) and Sleepy Hollow Rock shelter (CA-INY-2845) are located in the Darwin Wash area of Inyo County and were occupied during both the Haiwee and Marana periods. These sites are part of a cluster of three sites, including the open site of Grant’s Tomb (CA-INY-2847) and were originally investigated by Ancient Enterprises, Inc., in the 1980s and 1990s. Although the original faunal analysis was performed by Antonia Tejada-Flores, 330 remains from the three sites were reanalyzed in order to address seasonality, differences between sites and changes in hunting practices through time.

Fowler, Catherine (University of Nevada, Reno, Emerita)

Following Isabel Kelly: Fifty Years Plus on the Trial of a Pioneer Ethnologist/Archaeologist

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

Isabel T. Kelly’s contributions to Great Basin ethnography far outweigh any to the regions’ archaeology. Yet because archaeology was her “first love,” her ethnographic materials reflect an orientation to understanding human/land relationships that are of value to the region’s archaeologists. Circumstances for women during the Great Depression precluded Kelly from obtaining an academic position that would further her archaeological career, but her permanent move to Mexico and life as an independent scholar allowed her to pursue both archaeology and ethnology. Today she is remembered as the “Mother of West Mexican archaeology” as well as a prominent ethnologist. For more than fifty years, I have followed Kelly’s tracks in the Great Basin, often working with descendants of people she interviewed in the 1930’s, and still strongly believing in her orientation to human/land relationships.

Freeman, Jacob (Utah State University)

see Bird, Darcy

Fulkerson, Tiffany (Washington State University)

see Tushingham, Shannon

Furlong, Julia (Eastern Washington University)

see Galm, Jerry

Galm, Jerry (Eastern Washington University)
Gough, Stan (Eastern Washington University)
Furlong, Julia (Eastern Washington University)

Late Paleoindian Site Organization and Abandonment Processes: A Case Study
Understanding site organization requires an interpretation of how abandonment processes affect recovered archaeological remains. The highly structured distribution of recovered artifacts on the single occupation surface at the Sentinel Gap site includes a distinctive abandonment signature. This final phase of the site record incorporates the intentional breakage of different categories of artifacts and redistribution of at least some of these materials across the occupation surface, as well as the apparent burning of two probable domestic structures. When considered in regional context, this abandonment signature lends support to the presence of different cultural groups in the Columbia Plateau during the Late Paleoindian period. The highly formalized Sentinel Gap site record also accommodates a finer resolution analysis of abandonment processes and interpretation of their socio-cultural context.

George, Nicole (University of Nevada, Reno)
Smith, Geoffrey (University of Nevada, Reno)
Rondeau, Michael (Rondeau Archeological)

Raw Material Selection Among Fluted Point Makers in the Northwestern Great Basin

Ongoing research at fluted point sites in southeastern Oregon and northwestern Nevada has demonstrated that fluted points were predominantly manufactured using a few select obsidian sources (e.g., Glass Buttes and Beatys Butte). We explore possible explanations for this pattern including: (1) the high visibility of prominent landmarks associated with some commonly used obsidian sources; and (2) proximity to obsidian source. Using Geographic Information System (GIS), we conducted a viewshed analysis to explore the relationship between fluted point finds and the obsidian sources on which the points are made. The results of the study contribute to our understanding of the role that landscape learning and raw material availability played in fluted point technology in the northwestern Great Basin.

George, Nicole (University of Nevada, Reno)

see Sturtz, Sara N.

Giambastiani, Dayna (G2 Archaeology)

Prehistoric and Historic Archaeology along the West Shore of Winnemucca Lake, Washoe County, Nevada

A recent 1,100-acre archaeological inventory along the western shore of Winnemucca Lake identified 30 archaeological sites that consist primarily of prehistoric lithic scatters and habitations. Three sites, however, are related to transportation and recreational use of the lake by the infamous “Adobe Charlie” during the early twentieth century. This poster provides an overview of survey findings, making comparisons to the well-known and nearby prehistoric Coleman Locality and exploring the history of Adobe Charlie’s exploits at the lake.
Glidden, Laurel (Bureau of Land Management)

*Bullseye: managing cultural resource sites to reduce the occurrence of illegal collecting and improve site conditions.*

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

When conducting fire rehabilitation and habitat improvement projects, the traditional practice has been to avoid cultural resource sites to prevent impacts from equipment. However, this practice has resulted in discrete, obvious islands of vegetation which can lead to increased looting, impacts from cattle and wildlife congregating and has done little to counter the effects of erosion plaguing Utah sites. I propose an integrated, active approach to managing cultural resources.

Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

*Technological organization at Bonneville Estates Rockshelter: A Diachronic Perspective from Paleoindian to Late Archaic Times*

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

Bonneville Estates Rockshelter contains a series of well-preserved cultural layers spanning from at least 13,000 years ago to latest prehistoric times. This paper documents change in lithic technological organization, examining facets of variability including procurement and selection of toolstone, production of unifaces, bifaces, and ground-stone artifacts, and morphology of projectile points. We also place these findings in the greater context of the rockshelter’s record, demonstrating relationships between technological organization and prehistoric subsistence choices, durations of occupation, and degrees of mobility. For example, we find that there is a high correlation between the ratios of projectile points and ground-stone artifacts and the relative importance of artiodactyl hunting versus plant processing; and we find that there was a significant reduction in mobility from Paleoindian to early Archaic times, with later Archaic occupations reflecting mobility potentially as high as in Paleoindian times.

Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

*Re-introducing Bonneville Estates Rockshelter*

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

This paper introduces the Bonneville Estates Rockshelter research program. First, we review the excavation’s ultimate aims, specific questions, and theoretical perspective. Second, we present a history of research in the shelter. And third, we outline previously reported findings, highlighting the Paleoindian occupation. As such, the presentation serves as an introduction to the rest of the session that follows.

Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

*see Graf, Kelly*
Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

see Hockett, Bryan

Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

see Keene, Joshua

Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

see Louderback, Lisbeth

Gough, Stan (Eastern Washington University)

see Galm, Jerry

Graf, Kelly (CSFA, Department of Anthropology, Texas A&M University)
Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)
Hockett, Bryan (Bureau of Land Management Nevada)
Rhode, David (Desert Research Institute)

Stratigraphy and Chronology at Bonneville Estates Rockshelter, Eastern Great Basin

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

Bonneville Estates Rockshelter was excavated by our team during the summer field seasons of 2000-2009. The site is located about 30 miles south of West Wendover, NV/Wendover, UT in the Lead Mine Hills, a set of low dolomite and limestone hills flanking the southeastern edge of the Goshute Mountains. It is situated at the Pleistocene Lake Bonneville high shoreline, approximately 5200’ (1500 m) asl. Here we present field and lab results of site stratigraphy and chronology. More than 15 cultural occupation episodes and 13,000 years are represented in the site profile, giving us a unique diachronic view of humans responding to environmental changes in the region.

Green, Thomas (Boise State University)

Givens Hot Springs and Mud Springs

Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

Givens Hot Springs and Mud Springs are sites located at large hot springs on the south side of the Snake River between Marsing and Walters Ferry, Idaho. Both sites were excavated in the 1980s by the Idaho State Historical Society with major support from the Idaho Archaeological Society. These were salvage excavations, as both sites are privately owned and now destroyed. The excavations at Givens found houses and middens ranging from cal BP 5400 to cal BP 957, with evidence of late fall and winter occupations. Mud Springs was heavily looted in the 1950s and some collections were donated. The excavations were aimed at discovering the context of these
collections. Papers and articles were presented and published on these projects, but final technical reports were never completed. Thanks to Ken Reid, serious work towards this end is near completion for Givens Hot Springs. Mud Springs waits offstage at the moment.

Gross, Phil (Cinnabar Video)

see Norton, Tammara

Gruhn, Ruth (Retired)

see DeBunch, Patricia

Haisley, Cody (Natural History Museum of Utah)
Boomgarden, Shannon (Natural History Museum of Utah)
Simons, Ellyse (Natural History Museum of Utah)
Metcalfe, Duncan (Natural History Museum of Utah)

Understanding Incremental Development of Prehistoric Agricultural Fields Through Experimental Research

Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

Converting a section of the landscape into an agricultural field can be a costly endeavor. Draft animals and mechanization have decreased the human-labor costs of this task considerably, but for most small-scale subsistence farmers the development of agricultural fields likely occurred over a period of years. We propose that prehistoric farmers, particularly the Fremont in our case, would have used an incremental strategy, beginning with those modifications that produced the greatest increase in harvest per unit of capital investment, culminating with those that produced the least, but were still worth undertaking given the cumulative costs and benefits. This is an important point: field investment is only economically worth doing if it increases the efficiencies of farming, measured as the amount of harvest per unit of time invested in capital and annual costs. By using this method, prehistoric agriculturalists could assure a harvest from the first planting, and steadily improve the field by clearing obstructions, developing increasingly efficient irrigation systems, and perhaps even leveling the field to improve farming efficiencies. We explore the viability of the incremental strategy using actualistic research at a half-acre plot in Range Creek Canyon, beginning with an irrigation system dug using simple tools and progressing through the developmental stages with daily labor over the course of the growing season. We posit that the incremental method will provide an adequate harvest while optimizing the cost/benefit issues encountered in prehistoric agriculture.

Haisley, Cody (Natural History Museum of Utah)

see Simons, Ellyse

Halford, F. Kirk (Bureau of Land Management Idaho)

Out of the Box: New Horizons for Cultural Resources Data Management and Analyses
Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

Following the 50th anniversary of the National Historic Preservation Act of 1966 (NHPA), we are compelled to take both a retrospective and introspective view of the NHPA, and in particular the implementation of Section 106. Though making great strides, Section 106, the primary driver of Cultural Resource Management, is still often boxed in by rote inventory and unimaginative implementation. In honor of recently retired Idaho State Archaeologist and Associate SHPO, Ken Reid, this paper will reflect on our work together and many discussions on the topic of enabling outcomes that break out of the 106 procedural box through refined data management and analytical applications. This paper will focus on the importance of applying more rigorous data management principles to landscape level planning and data modeling, facilitating proactive versus reactive assessments and treatments of cultural heritage values.

Hall, Mark (Winnemucca BLM)

see Ataman, Kathryn

Hardin, Keith (HRA Inc.)
Roberts, Heidi (HRA Inc.)

Could it be Paleoindian if the Obsidian Hydration Rim is at Ten?

Poster Session (Thursday 2:00 PM-4:00 PM, Bryce Ballroom)

Obsidian hydration rims on four flakes collected during data recovery investigations at two small lithic scatters near Milford in Beaver County, Utah ranged in thickness from 8-10 microns. This is the same thickness as a Clovis point from the nearby Mineral Mountains that was also made of Wild Horse Canyon obsidian. Although none of the artifacts collected from the lithic scatters contained technological evidence of a Paleoindian association, could the site actually be that old? This poster explores that possibility and asks you to weigh in on the evidence.

Hardin, Keith (HRA Inc.)

see Roberts, Heidi

Hart, Isaac (University of Utah)
O'Connell, James (University of Utah)
Trammell, Josh (Logan Simpson)

The effects of fire on annual density of wild onion, a geophyte resource on the Colorado Plateau.

Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

We present the results of nine years of annual monitoring the density of wild onion (Allium macropetalum) in several large patches at the University of Utah's Bonderman Field Station at Rio Mesa in Southeast Utah. All patches varied synchronously with climate over the study period with respect to above ground plant counts. However, a patch which was experimentally burned in early spring showed a significant increase in above
ground plants counted for two years following the burn. These results indicate anthropogenic burning of patches of this and other similar geophyte resources would have a positive effect on human foraging efficiency.

Hart, Isaac (University of Utah)

see Brunelle, Andrea

Hart, Isaac (University of Utah)

see Cole, Kasey

Hart, Isaac (University of Utah)

see Jones, Kaylee

Harvey, Amanda (USDA Forest Service, Tahoe National Forest)
Baldrica, Michael (USDA Forest Service, Tahoe National Forest)
Smith, Carrie (USDA Forest Service, Tahoe National Forest)
Zingerella, Patrick (USDA Forest Service, Tahoe National Forest)
Long, Ashley (USDA Forest Service, Tahoe National Forest)

Landscape and Group Identity at The Davies-Johnson Lumber Company Camp.

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

Forest Service Site 05175600497, Davies-Johnson Lumber Company Camp, is a historic logging camp located in Carmen Valley on the Tahoe National Forest. Artifacts indicate the camp was occupied circa 1925 to 1928. Several features define the camp including remains of three collapsed structures, three artificial flats/platforms, an equipment maintenance area, wooden skid elements, a depression, two diffused artifact concentrations, fourteen refuse scatters, and the remains of a corral. Land use and artifact assemblages offer insight into group identity at this lumber camp during the Prohibition Era. Artifact assemblage and architecture delineate eight zones. A highly standardized site organization may have structured the camp's social dynamics. Refuse scatters were categorized into four zones: personal refuse, mess hall refuse, camp center/daily life, and work. Zones are demarcated by differential rates of multi-serve and single serve cans, medicinal bottles, personal products such as tobacco (7.1% of all cans), and diagnostic bottles. There are no artifacts that suggest ethnic groups, women, or children lived at the site. Large amounts of evaporated milk cans (75-95% of all single-serve cans), coffee cans, and multi-serve cans suggest communal meals involving copious amounts of coffee and baked goods. Life at the Davies-Johnson logging camp created a group identity through meals, high-quality worker well-being, and shared past-time entertainment.

Hattori, Eugene (Nevada State Museum)

Back Next Fall: A 19th Century Fisherman’s Cache from Winnemucca Lake, Nevada

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)
A remarkable artifact assemblage from a Winnemucca Lake, Nevada, cave represents a Euroamerican outdoorsman's cache dating to ca. 1889. These well-preserved possessions are dominated by fishing tackle, but also include a variety of ammunition and firearm tools, sheep shears, and miscellaneous household items. Fishing gear clearly reflects the individual's occupation as a commercial trout fisherman, a lucrative, but short-lived occupation at Winnemucca Lake. The artifacts' minimal value may account for their abandonment but reflect the owner's higher value possessions. This assemblage provides a rare look into seldom studied 19th century Euroamerican lifeways in western Nevada.

Henrikson, L. Suzann (Idaho National Laboratory)
Armstrong, Trent (Idaho National Laboratory)
Holmer, Nicholas (Idaho National Laboratory)
Cook, Reese (Idaho National Laboratory)

Pluvial Lake Terreton: Understanding the Terminal Pleistocene Occupation of Southern Idaho's Pioneer Basin

General Session (Thursday 1:00 PM-2:30 PM, Alta-Brighton)

The high density of terminal Pleistocene sites in the Pioneer Basin of southeastern Idaho indicates that the pluvial lake system occupying the basin between roughly 15,000 and 9,000 cal B.P. provided a rich and diverse resource base. While this narrative is far from unique in the Desert West, the cornucopia of lithics associated with pluvial Lake Terreton and the surrounding landscape appear to share a strong affinity with the northwestern Plains. Stymied by the absence of discoveries in a datable context, our working hypotheses are being tested against geospatial data, hydrographic models, obsidian sourcing studies and morphometric analysis of projectile points to advance our current knowledge of TP/EH environments and human adaptations in southeastern Idaho.

Henrikson, L. Suzann (Idaho National Laboratory)

see Cook, Reese

Henrikson, L. Suzann (Idaho National Laboratory)

see Holmer, Nicholas

Herrera, Sarah (US Forest Service)

How the Ancient People from Two Diverse Valleys Accessed the Rich Landscape of the Wasatch Plateau in Central Utah

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

The Wasatch Plateau in Central Utah offered a high elevation and resource rich landscape for ancient people living in both Castle Valley and Sanpete Valley on its eastern and western sides, respectively. These resources include a whitish colored toolstone called Flagstaff Chert, which originates in outcrops at over 10,000 feet elevation. There are abundant quarry and camp sites associated with this chert throughout the plateau. Most of
these sites also contain non-local materials, including brightly colored cherts from the San Rafael Desert to the east and obsidian from sources to the west. Recent surveys on the Manti-La Sal National Forest conducted in cooperation with the Office of Public Archaeology at Brigham Young University identified surface artifacts across this landscape that provide the opportunity to test several hypotheses. The data provided by these surveys allows us to analyze when ancient use of the uplands was most intensive, which groups of nearby residents were using various areas on the plateau, and the routes they were using to access these plateau resources. Overall, this look at spatial and temporal patterns, suggest the persistent importance of the plateau to populations from both adjacent valleys.

Herzog, Nicole (Boise State University)

Seeing the unseen: microbotanical analyses bring invisible aspects of past diets into the light

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

There is little doubt that plants played a major role in the lives of peoples in the past. After all, plants are used not just for consumption but for clothing, weaponry, housing, and medicine. But perhaps because plants do not endure in the archaeological record in the same way that stones and bones do, their roles and the roles of those that procure and prepare them are often obscured. In this talk I will discuss new methods for detecting plant remains in the archaeological record and will highlight some of the ways that expanding our understanding of past plant use can broaden our field of view especially in contexts of land management, cultivation/domestication, social change, and the varied roles of men and women in production.

Herzog, Nicole (Boise State University)

Symposium Discussant

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

Hickerson, Robert (Bureau of Land Management)

Lincoln County Archaeological Initiative

Symposium (Friday 1:30 PM-5:00 PM, Alta-Brighton)

(no abstract provided. Is he planning to be a discussant for the LCAI symposium? Already listed as an organizer)

Hildebrandt, William (Far Western Anthropological Research Group, Inc.)
McGuire, Kelly (Far Western Anthropological Research Group, Inc.)

Population and Settlement Disruption during the Late Period: Implications for the Expansion of Numic Speaking People in the Great Basin

Symposium (Friday 9:30 AM-11:45 AM, Arches Ballroom)
This paper reviews evidence for high levels of human population density and settlement stability throughout much of the Great Basin during the Middle and Late Archaic periods, focusing on Basketmaker, Virgin Puebloan, and Fremont cultures to the east and southeast, and Lovelock and other hunter-gatherer cultures to the north and west. These cultures appear to have been disrupted at around 1000 cal BP, perhaps due the Medieval Climatic Anomaly. Numic speaking populations eventually occupied much of this territory but often in contrasting environmental settings using a different set of adaptive strategies. These findings have implications for previous models of direct, inter-group competition, and more recent proposals for long-term cultural continuity.

Hockett, Bryan (Bureau of Land Management Nevada)

Nutritional Ecology and the Benefits of Fact-Based Model Building

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Nutritional ecology developed out of a perceived need to bring fact-based model building into the study of the consequences of dietary choices made by prehistoric hunter-gatherers. Previously, a series of discredited models originally designed within the discipline of economics was used to interpret dietary choice by hunter-gatherers. These discredited models utilized two primary invalid assumptions: (1) humans primarily choose which foods to eat and which to ignore based on caloric return rates; and (2) prehistoric hunter-gatherers were ‘primitive’ in their thought processes and technology. Hence, hunter-gatherers were viewed as primitive versions of the Homo economicus character developed in microeconomics, resulting in the creation of “Primitive Economic Man”. In contrast, nutritional ecology is based on current research regarding the nutritional requirements of human health, the consequences of under- or over-consuming specific nutrients on demographic trends, as well as the cognitive or cultural aspects of dietary choice to model past subsistence behaviors. These latter models provide an avenue for more fact-based interpretation, as well as highlighting gaps in our knowledge about past subsistence practices.

Hockett, Bryan (Bureau of Land Management Nevada)
Smith, Geoffrey (University of Nevada, Reno)
Rosencrance, Richard (Department of Anthropology, University of Nevada, Reno)

What in the Hell Happened During the Early Holocene in the Great Basin?

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

The Early Holocene in the Great Basin (ca. 11,600 to 9,400 cal BP) was a time of significant biogeographic change. The Early Holocene is chronologically sandwiched between the earlier cool and moist Late Pleistocene and later warm and dry Middle Holocene. As a result, the Early Holocene can be seen as a transitional climatic phase between two extremes, the ‘Younger Dryas’ and the ‘Altithermal’. Climate change during the Early Holocene had profound effects on the distribution of plants and animals, including humans. In this paper we review the available radiocarbon chronology for human occupation during the Early Holocene, and discuss the effects of climate change on hunter-gatherers during this time period. We then focus on two recently excavated rockshelters with Early Holocene records of human occupation: Bonneville Estates Rockshelter, located on the western periphery of the eastern Great Basin; and Little Steamboat Point-1 Rockshelter, located in the
northwestern Great Basin. These two sites tell different tales about the nature and timing of climatic effects on hunter-gatherers during the Early Holocene.

Hockett, Bryan (Bureau of Land Management Nevada)
Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

The BER Projectile Points: 13,000 Years of Point Typology and Chronology in the Great Basin
Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

BER records the longest chronological sequence of projectile point typological change from a single site excavated in the Great Basin. Between 12,900 and 10,500 cal BP the only points recovered were several varieties of Western Stemmed. From 10,500 to 8,300 cal BP BER was largely abandoned, and no points were left behind. At 8,300 cal BP, the Early Archaic tandem of LSN points (including the newly designated Pequop subtype) and grinding stones appear, along with Pinto, Black Rock Concave Base, and a newly proposed Early Archaic-aged corner-notched dart point. Between 4,800 and 4,000 cal BP Gatecliff, Humboldt, and a second newly proposed corner-notched dart point – the Dead Cedar point – appears. Post-4,000 cal BP the sequence is typical of Great Basin point typology: Elko Series points appear, followed by Rosegate (at ca. 1,450 cal BP) and finally DSN/Cottonwood. There are no Elko Series points at BER that pre-date ca. 4,000 cal BP, and considering that there are now two newly designated corner-notched dart points that pre-date 4,000 cal BP in the Great Basin suggests that: (1) a so-called “long chronology” at the early end of the scale does not exist anywhere in the Great Basin except, perhaps, in the extreme SE corner of the region; and (2) the ‘if it’s a corner-notched dart point, then it’s Elko’ mantra is invalid.

Hockett, Bryan (Bureau of Land Management Nevada)

see Graf, Kelly

Holcomb, Justin (Boston University)
Wegmann, Karl (North Carolina State University)
Fletcher, Beatrice (McMaster University)
Jenkins, Dennis (Museum of Natural & Cultural History, University of Oregon)

Towards a Multi-Scalar Geoarchaeological Framework at the Connley Caves (3SLK50), Fort Rock Basin, Oregon
Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

This paper provides an overview of current geoarchaeological research at the Connley Caves, a series of late Pleistocene/early Holocene Western Stemmed Tradition occupations located within the Fort Rock basin of Oregon. This research seeks to integrate geomorphological, pedological, mineralogical, and geochemical data to 1) critically evaluate the stratigraphic integrity of the deposits; 2) reconstruct the natural and cultural site formation processes that altered, destroyed, and created these deposits; and 3) address the spatiotemporal context of the human occupations between and within each cave. The results of this multi- and inter-disciplinary research will provide key data for constraining diachronic human occupation at the Connley Caves, as well as
shed light on Pleistocene paleoenvironments within the Fort Rock Valley. Further, this framework will be expanded as a working model for future geoarchaeological research in similar contexts within the Northern Great Basin.

Holleran, Megan

see Ataman, Kathryn

Holmer, Marie (Idaho National Laboratory)

see Armstrong, Trent

Holmer, Marie (Idaho National Laboratory)

see Cook, Reese

Holmer, Marie (Idaho National Laboratory)

see Holmer, Nicholas

Holmer, Nicholas (Idaho National Laboratory)
Armstrong, Trent (Idaho National Laboratory)
Cook, Reese (Idaho National Laboratory)
Holmer, Marie (Idaho National Laboratory)
Henrikson, L. Suzann (Idaho National Laboratory)

2D and 3D Morphometrics for Assessing Terminal Pleistocene/Early Holocene Point Typologies in the Pioneer Basin of Southern Idaho

General Session (Thursday 1:15 PM-3:45 PM, Canyons)

The TP/EH archaeological record in the Desert West has been plagued by an absence of projectile points in a datable context. Because Idaho is no exception to this general trend, the challenge of deciphering the chronology of TP/EH projectile points from the Pioneer Basin has been no less daunting. The Holocene point projectile point typology from the eastern Snake River Plain appears to reflect a multi-millennial interface between the Great Plains, Plateau and Great Basin cultural areas. As such, we must also consider the potential for human interactions across adjoining regions during the TP/EH. Prompted by the morphological similarities between TP/EH projectile points from the Pioneer Basin and Northwestern Plains complexes, especially those coinciding with the period between 11,500 and 8500 cal B.P., we have applied modern digital and computer assisted 3D and 2D morphometrics to quantify variation within and between regions.

Holmer, Nicholas (Idaho National Laboratory)

see Cook, Reese
Holmer, Nicholas (Idaho National Laboratory)

see Henrikson, L. Suzann

Hora-Cook, Elizabeth (Utah State Historic Preservation Office)

see Finley, Judson

Hora-Cook, Elizabeth (Utah State Historic Preservation Office)

see Merritt, Christopher

Hoskins, Andrew (Far Western Anthropological Research Group)

A Statistical Revisit to the Morphology of Corner-notched Dart Point in the Eastern Great Basin

General Session (Thursday 1:15 PM-3:45 PM, Canyons)

Projectile points are one of the primary diagnostic artifacts Great Basin archaeologists use to typologically cross date open air sites. However, reliance on the approach can be problematic when similar style points emerge asynchronously in different areas, as many archaeologists have asserted with corner-notched dart points (Elko). Recent study into the morphological difference between eastern and central Great Basin corner-notched dart points identified discrepancy in notch placement and orientation that may distinguish Middle and Late Holocene types, albeit statistically (Hoskins 2016). Here we present additional work with those assemblages (Danger Cave, Bonneville Estates Rockshelter, and Monitor Valley) to test whether differences in notch attributes hold up to greater statistical scrutiny. As well, we examine point specimens from proximal dune sites in the Bonneville Basin that exhibit similar notch attributes.

Hovanes, Kaitlin (SWCA Environmental Consultants)
Oliver, Anne (SWCA)

Architecture as Archaeology: An Investigation of Two Mormon Farmsteads Through an Anthropological Lens

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

While conducting intensive level documentation for the West Davis Corridor project, SWCA Environmental Consultants recorded and investigated two farmsteads built by Mormon farmers beginning in the late nineteenth century. This paper will discuss how SWCA’s approach to recording these two properties integrated a variety of techniques relevant to archaeology and anthropology in addition to standard architectural research methods, and how the combination of these disciplines can result in a more detailed and accurate understanding of the history of cultural resources. It will focus on the use of measured drawings as a tool in conducting what could be described as “architectural archaeology” on buildings that have been significantly changed over time, as well as the use of oral histories and interviews with the descendants of the families who built and occupied the farmsteads.
Central Great Basin archaeology differs, to some degree, from the rest of the Intermountain West. In Monitor Valley, for example, the lithic landscape was a critical affective variable. High-quality geological obsidian sources cluster along the margins of the Intermountain West (the “Obsidian Rim”), while the Central Great Basin (the “Chert Core”) was a notoriously obsidian-poor terrain. With this foundation in mind, we addresses the issue of obsidian source use variability at Alta Toquima and other sites on the Mt. Jefferson tablelands of central Nevada, compare these results with data generated from sites elsewhere in Monitor Valley, then investigate the extent to which patterning at sites in Monitor Valley can be extended to the upper Reese River Valley. We argue that the Alta Toquima lithic assemblages differ from those elsewhere in Monitor Valley because they reflect the planning and anticipation of family survival at extreme elevation. More generally, we expect that the observed obsidian source-use patterns in other high-altitude settings in the Great Basin will be strongly influenced by the diversity, abundance, and quality of raw material sources.

Hull, Kathleen (University of California, Merced)

Native Occupation and Obsidian Acquisition in Northern Yosemite National Park

General Session (Friday 1:30 PM-3:30 PM, Snowbird)

Recent archaeological excavations undertaken at two sites in northern Yosemite National Park add much-needed data to the developing picture of native use of the high country of the Sierra Nevada within proximity to the Bodie Hills obsidian source. Radiocarbon assays, temporally diagnostic artifacts, and obsidian hydration data reveal that much of this activity dates to use within the last 1,000 years, while x-ray fluorescence obsidian provenance studies and protein residue analysis offer clues to obsidian acquisition and land use as part of larger patterns of seasonal occupation. Comparison of results with observations from sites in lower-elevation areas to the east and west provides a broader context for interpreting the data.

Ideker, Carlie (Utah State University Luminescence Lab)
Rittenour, Tammy (Utah State University Geology Department and Luminescence Laboratory)
Nelson, Michelle (Utah State University Luminescence Laboratory)
Expanding the Chronological Toolkit: Luminescence Dating in Archaeological Contexts

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

Luminescence dating is a versatile tool used to date site occupations and geoarchaeological materials. The chronometric technique provides an age estimate of the last time quartz or feldspar mineral grains were exposed to sunlight or high temperatures. Variations of the method have successfully dated hearths, pottery manufacture, anthropogenically placed stones, fire-cracked rock, and sediment deposits in related geological and archaeological settings. Accuracy and precision of luminescence results are directly dependent on the target material sampled, field collection methods, the quality of accessory dose rate and water content samples, and detailed sample information. Considerations must be given to the target material selected for dating to ensure past thermal or optical resetting was adequate and that the sample has remained undisturbed from post-depositional soil processes and bioturbation. The wildfire history of a site may also be needed to determine the likelihood of recent thermal resetting in artifacts or sediment collected at, or near, the site surface. Samples must be collected and kept under dark conditions and accompanied by representative sediments from the immediate surrounding area. These supplementary sediments are used to determine the soil moisture content and environmental radiation the sample received during burial (dose rate). Additionally, sample information regarding collection depth, site elevation, latitude, and longitude are required to calculate the cosmic radiation component of the dose rate. Suitable archaeological contexts for luminescence dating, proper sampling strategies, and minimum amounts of sample material needed for processing and analysis are discussed.

Ideker, Carlie (Utah State University Luminescence Lab)

see O’Rourke, Makaela

Jackson, Jared (University of Utah)

see Boomgarden, Shannon

Jamaldin, Sophia (University of Nevada, Reno)

The Paleoindian Projectile Point Assemblages from Fort Rock Cave, Cougar Mountain Cave, and the Connley Caves

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

Although many of the Great Basin’s caves and rockshelters saw short-term use during the terminal Pleistocene/early Holocene, researchers have argued that caves in Oregon’s Fort Rock Basin exhibit evidence of longer-term occupations. To test this hypothesis, I conducted source provenance and curation analyses of the Paleoindian projectile points from Fort Rock Cave, Cougar Mountain Cave, and the Connley Caves. I evaluate patterns of toolstone use and discuss their implications to our current knowledge of early settlement-subsistence practices in the northwestern Great Basin.

James, L. Brock (University of Utah)
Tucker, Kaley (University of Utah)
Rocks and Glass are Heavy, but Flakes Make Useful Tools: Application of the Marginal Value Theorem to Demonstrate Increased Processing Intensity of Lithic Cores and Expedient Tool Use as Mitigating Factors for the Transportation Costs of Lithic Material

Symposium (Thursday 1:00 PM-3:15 PM, Deer Valley)

The acquisition and transport of material for the manufacturing of flaked stone tools comes at a cost. However, many archaeological sites located far from lithic procurement areas contain a high number of large early stage reduction waste flakes. One explanation for this phenomenon is the intentional use of early stage reduction debitage as expedient blade tools. While this theory is generally accepted, the practice of expedient tool use has not been assessed in detail. This study presents a novel non-subjective method for reduction stage identification, and examines the distribution of both lithic materials and the behaviors associated with their use. Marginal Value Theorem is used as a theoretical framework to examine the impact impact of distance on processing intensity and abandonment of lithic cores, and to quantify spatial patterns of expedient tool use by demonstrating the increased rate of expedient tools relative to increased distance from a lithic source. We evaluate this through an artifact inventory and analysis of several archaeological sites in the Lower Dolores River Canyons Area in east-central Utah.

30 Years Directing the Northern Great Basin Prehistory Project

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

C. Melvin Aikens advertised for a graduate student field supervisor for the University of Oregon archaeological field school in the spring of 1989. That summer we began a multi-decadal research program modeled after Earl Swanson’s Birch Creek Project. Initially known as the Fort Rock Basin Prehistory Project (1989-1998) it transitioned into the Northern Great Basin Prehistory Project in 1999. Organization of the initial research design into three year segments arranged from youngest (historic to 3000 cal. BP) to oldest (>9000 cal. BP) was intended to limit the damage I might do to the archaeological record as I transitioned from a Mojave Desert archaeologist to a Northern Great Basinist. Focusing research on the rich archaeological records of the Fort Rock and Summer Lake basins resulted in an unique perspective of the more than 14,000 years of Northern Great Basin prehistory known to date.
Jenkins, Dennis (Museum of Natural & Cultural History, University of Oregon)

see Holcomb, Justin

Jenkins, Dennis (Museum of Natural & Cultural History, University of Oregon)

see Kingrey, Haden

Jenkins, Shalise (Southern Utah University)

An Analysis of Paleobotanical Samples from Southern Utah

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

An archeobotanical and paleoethnobotanical analysis of utility, medicine, and food plants from an ancestral Puebloan site excavated by Southern Utah University’s 2009 and 2010 field schools.

Jensen, Jill (National Park Service)

National Trails System Act at 50: Preservation, Awareness, Participation

General Session (Saturday 10:00 AM-11:15 AM, Powder Mountain-Solitude)

Four National Historic Trails cross the Great Basin and 2018 marks the 50th Anniversary of the National Trails System Act. This discussion forum explores different perspectives on how the NTSA has impacted preservation and awareness of, and participation in, historic trails; how National Historic Trails are addressed in NEPA and Section 106 reviews; and what the future holds for these resources. A four person panel will include representation from administrators, land managers, cultural resource management professionals, and trail advocacy groups. The audience will be encouraged to participate in the panel discussion of four topics (preservation and awareness, public participation, 106 and NEPA, future directions) with an open-ended Q&A session at the end.

Jepsen, Jacob (Brigham Young University)
Allison, James (Brigham Young University)
Ferguson, Jeffrey (University of Missouri, Columbia)

Embedded Procurement and Exchange: Obsidian from Wolf Village Utah

Symposium (Friday 9:00 AM-11:45 AM, Canyons)

XRF analysis of more than 1500 pieces of obsidian from Wolf Village (42UT273) in the Utah Valley, Utah, shows that the obsidian originated from areas as far north as Bear Gulch, Idaho and as far south as the Mineral Mountains in southern Utah. Most of the obsidian, however, came from two Utah sources: Black Rock, which is 130 km southwest of the site, and Topaz Mountain, about 100 km to the west. The presence or absence of cortex, and the shape of pieces with cortex, shows that procurement was different for the two sources. Cortex on Topaz Mountain artifacts is much more common than on artifacts from Black Rock. Many flakes from Topaz also
were strongly curved, while most pieces of Black Rock obsidian debitage were flat. This shows that Topaz Mountain obsidian was brought to Wolf Village as small nodules, while Black Rock obsidian came to the site in the form of large flakes or bifaces. We hypothesize that Topaz Mountain obsidian was likely picked up as small nodules by Wolf Village residents, possibly while hunting antelope or small game in the west desert south of Vernon, Utah. Black Rock obsidian, in contrast, may have been obtained through exchange with people living to the south.

Jerrem, Jerry (Boise State University)

Challenging old paradigms: Pre-Clovis in the western Great Basin

General Session (Thursday 1:00 PM-2:30 PM, Alta-Brighton)

The Winnemucca Lake basin, one of many branches of Pleistocene Lake Lahontan in northwest Nevada, is again leading the way for evidence of early human occupation of the Great Basin. Among the most familiar sites are Fishbone and Crypt caves, a part of the Guano Mountain cave complex, where a reevaluation of storage facilities has added a new dimension to the great antiquity of the Lahontan Basin. But the archaeological record has been a bit sketchy in the past and has led to a great deal of confusion in the literature. I hope to be able to clarify some of the sketchy information and bring into perspective a picture of some of the earliest evidence of human occupation in the western Great Basin.

Johansson, Lindsay (University of Colorado Boulder)

see Richards, Katie

Johnson, Taryn (Texas A&M University)
Linderholm, Anna (Texas A&M University)

The Prehistoric Diet: Genomic Analysis of Flora and Fauna Found in Bonneville Estates Coprolites, Nevada

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

Coprolites (dessicated human feces) contain genetic traces that can be used in dietary and environmental reconstruction. Ancient DNA was extracted from ten coprolites excavated from Bonneville Estates Rockshelter (BER), Nevada that date to the Paleoindian and Archaic periods of western North America (12,500-1000 years ago) to determine the taxonomic diversity and genetic biodiversity present in prehistoric diets of the ancient human occupants of the site. The rockshelter is situated in the arid west of North America, where even minor changes in climate led to major alterations in the local biotic environment. Taxonomic identifications were given at the family and genus level while taxonomy-independent identifications using a modified operational taxonomic unit were given at the family level. Results from each sample in their chronology were compared to suggest how Archaic diets may have shifted through occupation. Further research would be done to determine if there were additional shifts, be they cultural, populational, or otherwise, that occurred alongside the dietary one. Broader applications engage with the effect climate change can have on floral and faunal populations, how
humans have interacted with the biotic parts of their environment, and could be used to understand more about modern relationships between humans and their environment.

Jolie, Edward (Mercyhurst University)

An Agenda for Future Perishable Artifact Research in the Great Basin

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Exceptional preservation of perishable artifacts at archaeological sites in the Great Basin, with a record going back nearly 13,000 years cal BP, has justifiably stimulated considerable professional and public excitement in individual artifacts, sites, and the wider region itself. Previous research on these technologies over the last century has contributed to knowledge of long-term technological change and innovation, site chronology, and population movement. However, there remains a great deal more that we can learn from these rare items. In this presentation, I consider the current state of perishables research in the Great Basin and propose an agenda for future scholarship that builds on prior work while maximizing the potential of this rarely preserved class of material culture. Chronology will, and should, remain a key research domain, but there exists underappreciated opportunities to explore additional questions about human-environment interactions, population movement, social interaction and identities. Necessary for many of these future projects will be, on the one hand, improved collaboration with contemporary weavers and descendant communities, and, on the other, adopting a multiscalar approach that considers attribute-oriented variability alongside increased engagement with the perishable artifact records and historic traditions of adjacent cultural regions.

Jones, Emily Lena (University of New Mexico)

Domestic animals and the Columbian Exchange: ideas for the Great Basin from the Middle Rio Grande

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Recent work in the Middle Rio Grande Valley of New Mexico has established that the introduction of domestic animals resulted in different environmental impacts, with the variability seemingly driven by several factors; a combination of the ecology of the domestic species, local environmental conditions prior to the introduction event, choices about animal husbandry and management, and the region's connectivity to larger trade networks all may be involved in any particular case. In this talk, I use the histories of domestic turkeys (Melagris gallopavo), domestic sheep/goats (Ovis aries/Capra hircus), and domestic cattle (Bos taurus) alongside the history of environmental change in the Middle Rio Grande to explore questions of cause and effect in the Columbian Exchange in this region. I then turn to the record of domestic animal use in other parts of the American West, particularly the Great Basin, to discuss how research on domestic animals in these regions could contribute to larger debates about domestic animals, environmental impacts, and the Columbian Exchange in the Americas and beyond.

Jones, George (Hamilton College, Emeritus)
Beck, Charlotte (Hamilton College, Emerita)

Assessing Failure Rates and Tool Utility in the Manufacture of Great Basin Stemmed Projectile Points
The field-processing model has been used to show how resource acquisition behavior is influenced by the round-trip travel costs between habitation and procurement sites. Developed for subsistence resource processing, this model also has seen fruitful application to lithic tool manufacture, demonstrating how travel cost influences the level of raw material processing at quarry and occupation/procurement locales. Tool utility also bears on this relationship. As generally conceived, tool utility is most directly measured as material quality, which encompasses the ease with which stone is shaped, as well as the capacity of a tool to accomplish the task for which it is intended. The present study treats tool manufacture failure as a related component of tool utility insofar as it influences production time. All things being equal, lithic material that is less prone to manufacture failure should be favored by knappers. To evaluate differences between raw materials, most analysts, we suspect, would take a replicative-experimental approach, not only to assess how often manufacture episodes are prematurely terminated by tool failure, but also at what stage or stages failure is likely to occur. Here an archaeological case is used to derive an estimate of manufacture failure. The assemblage consists of nearly 60,000 dacite artifacts, almost exclusively bifaces and biface reduction debris, and all coming from the same geologic source. We estimate that in roughly one-quarter of cases bifaces were irreparably broken. As the example shows, archaeologically-based estimates are difficult to achieve, but are important for evaluating experimental results and for enhancing the realism of optimality models.

Jones, George (Hamilton College, Emeritus)

see Beck, Charlotte

Jones, Kara (Epsilon Systems Solutions/CSU Bakersfield Alumni)
Yohe, Robert (CSU Bakersfield)
Parr, Robert (CSU Bakersfield)

Huntoo Valley Pronghorn Trap Complexes of the Great Basin

Symposium (Saturday 9:00 AM-10:45 AM, Snowbird)

Subsistence patterns of hunter gatherer groups of the Great Basin often focus on plant gathering and solo or small band level big game drives or hunts. Little attention is paid to trap complexes and the technical aspects of game drives, as well as the community that drives them. These drive complexes have remained unchanged from Archaic to Late Prehistoric times. This is an in-depth look of 26Mn589, a pronghorn drive complex in Mineral County Nevada with a focus on technical aspects of the corral feature and what those features mean. These features are then analyzed in context with similar pronghorn antelope traps in the Great Basin of Nevada and California. The field work of this project was completed by Robert Parr in fulfillment of his MA from UC Riverside. This paper is an adaptation of his field work.

Jones, Kaylee (University of Utah)
Brunelle, Andrea (University of Utah)
DeGraffenried, Jennifer (Department of Defense Dugway)
Hart, Isaac (University of Utah)
Linking archaeological and paleoecological histories in the Bonneville Basin: a comparison of Camels Back Cave and Simpson Spring, Utah

General Session (Friday 1:30 PM-3:30 PM, Snowbird)

This research provides a case study that utilizes paleoecological data further our understanding of the archaeological record in the Bonneville Basin. Here we present the pollen record from cultural sediments at Camels Back Cave and compare it to a paleoecological reconstruction of Simpson’s Spring. This study is unique in that Simpson’s Spring would have been the closest perennial freshwater site to humans intermittently occupying Camels Back Cave during the mid to late Holocene. By reconstructing the local vegetation community and climate during the period of ~7200 – 800 B.P. at Simpson’s Spring, we can better understand the periods of occupation and abandonment from Camelsback Cave. This study will be one of the first paired paleoecological site/archaeological site investigation in the Bonneville Basin that strives to better connect local environmental and resource conditions to archaeological records.

Jones, Kaylee (University of Utah)

see Brunelle, Andrea

Jones, Kaylee (University of Utah)

see Louderback, Lisbeth

Jones, Noel (California State University, Chico)

Settlement Patterns in the Great Basin: Analyzing the Bare Allotment of Western Nevada

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

For decades, archaeologists have demonstrated the importance of particular geomorphic landforms and how the spatial distribution of natural resources influence settlement patterns of prehistoric peoples. This paper aims to examine these aspects in a tract of land known as the Bare Allotment that lies at juncture between Surprise Valley and Black Rock Canyon in northwestern Nevada. This particular region of high desert is more arid than surrounding areas and has the potential to reveal patterns that differ from the broader regional ones made earlier.

Keach, Levi (Winnemucca BLM)

see Ataman, Kathryn

Keene, Joshua (Texas A&M University, Baylor University)
Goebel, Ted (Center for the Study of the First Americans, Texas A&M University)

Obsidian Sourcing and Raw Material Analysis of Lithic Artifacts at Bonneville Estates Rockshelter
Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

Bonneville Estates Rockshelter (BER), located in the Bonneville Basin of eastern Nevada, is well known for having well-dated, stratified archaeological deposits spanning the terminal Pleistocene and Holocene periods. During this time, continuous variation in paleoclimatic conditions affected human settlement and subsistence strategies, as reflected by diachronic variation in lithic raw material preference between different cultural horizons at BER. This is determined through a raw material analysis of lithic tools and debitage, including a portable X-ray Fluorescence source analysis of obsidian artifacts. Results show that increasing aridity during the early-middle Holocene corresponds with a decrease in average raw material source distance and a reliance on lower quality, local raw materials. Later decreases in aridity likewise are reflected by a return to a greater average source distance and quality, further suggesting a correlation between average site occupation span and paleoclimatic variation.

Kelly, Robert L. (University of Wyoming)

see Robinson, Erick

Kendrick, Brianna (Department of Geography, University of Oregon)
McDowell, Patricia (Department of Geography, University of Oregon)

Re-Examining Pluvial Lake Chewaucan Shorelines

Poster Session (Thursday 2:00 PM-4:00 PM, Bryce Ballroom)

The Chewaucan Basin of Eastern Oregon has been the subject of numerous studies and notable archaeological finds, including the oldest known human remains in North America. While currently a high desert, 20kya it held Lake Chewaucan, a vast lake covering 1,244km² and up to 114 meters deep. Due to the archaeological significance of the region, it remains imperative to build on the previous lake-level research and develop the most accurate shore-line map possible in the hopes of supporting further archaeological and paleoenvironmental research in the Great Basin. This project re-examines previous lake-levels cited in literature through the use of an RTK GPS system to obtain more accurate elevations from previously identified lake shore sites and then maps those elevations using current satellite imagery and DEM data.

Kennedy, Jaime (University of Oregon Museum of Natural and Cultural History)

What’s in a Hearth? Botanical Remains as Indices of Younger Dryas Climate, Diet, and Behavior at the Paisley Five Mile Point Caves, Southcentral Oregon

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

Although he has overseen research at numerous sites during his 30-year tenure as director of the University of Oregon’s Northern Great Basin Prehistory Project field schools, the quantity and quality of research projects generated by Dennis Jenkins at the Paisley Caves have solidified his position in the pantheon of influential Great Basin archaeologists. As reported by Jenkins and his colleagues, the Younger Dryas-aged deposits at the Paisley Caves contain significant information about the foraging behaviors of people living in the American west during
the Terminal Pleistocene. This paper presents results of the analysis of seven cooking features identified in Paisley Caves 1, 2, and 5 that have been dated to 13,000-11,600 cal BP. Macrobotanical data recovered from the hearths document paleoenvironment as well as diet breadth and social behaviors of Paleoindians visiting northern Great Basin rockshelters as a stopover on their seasonal subsistence rounds during the Younger Dryas.

Kiahtipes, Christopher (Institute for the Advanced Study of Culture and the Environment, University of South Florida)

Holocene Climate Change as a Model for Future Global Warming in the Bonneville Basin

General Session (Friday 1:30 PM-3:30 PM, Snowbird)

Major reorganizations of Earth’s ecosystems is one of the most serious potential outcomes of future climate change. Archaeology and paleoecology can better inform land management decisions and risk assessments by articulating regional scale climate change and community-scale environmental risk over time. Using aggregated paleoecological results from the Bonneville Basin region, this presentation outlines the variable outcomes of Middle to Late Holocene climate change across a range of physiographic and biotic contexts. This region is rich in paleoecological records including pollen cores, faunal accumulations, and packrat middens stored in the Neotoma database. This multi-proxy dataset is ideal for evaluating the spatial and temporal patterns of Middle and Late Holocene phases of climate change. Substantial demographic reorganizations take place across these time spans, but there remains considerable uncertainty about the mechanisms driving climatic change at the time. This presentation focuses on two questions. Is there a coherent signal of Middle Holocene aridity across the Bonneville Basin? What does paleovegetation change indicate about the modes of precipitation variability at this time? Looking towards the future, this presentation considers how extreme arid events in the past may serve a model for our future.

Kimball, Vaughn (Idaho Power Company)

Paleofloods, Terraces and Hells Canyon Archaeology

Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

The Snake River is the largest tributary to the Columbia, running approximately 1,735 km from headwaters in the Rocky Mountains to its mouth. In southern Idaho, it flows through an arid region, and of necessity served as an important and reliable source of water and riparian resources, and as a travel corridor. In southwest Idaho, the river turns north and flows 175 miles through the mountainous region of western Idaho and eastern Oregon referred to as Hells Canyon, which has been the focus of archaeological research beginning in the mid-20th century with the Smithsonian River Basin Surveys and continuing to more recent work associated with land management agencies and federal licensing of the Hells Canyon Hydroelectric Project. The canyon offers a unique opportunity to understand the Holocene hydrologic history of the Snake River, how it has responded to past climate change, and what those dynamics would have meant in terms of the opportunities and constraints impacting human populations living both in the canyon and throughout southern Idaho. This paper will briefly summarize previous archaeological work, and geomorphological research into the history of paleofloods within the canyon. It will conclude with a discussion of ongoing research to expand understanding of the canyon’s paleoflood history, and the potential for associated landforms to provide information relative to Snake River dynamics throughout the Holocene.
**Drone Use and Imagery to Assess Current Conditions and Impacts at Cultural Resources on the Public Use Area of a Training Range at Mountain Home Air Force Base, Owyhee County, Idaho**

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

It can often be difficult to obtain permission to use drones on active training ranges on military bases for many contracting tasks including archaeology. Through coordinated communication with the range manager and schedulers, the MHAFB CRM was able to obtain drone use flight times on the range schedule, and obtain permission for drone use by Far Western during a recent condition assessment project. Drone imagery provides excellent support for the condition assessment of archaeological sites after a recent dam breach and flood of Pot Hole Creek on MHAFB. We suggest that drones are an excellent tool for viewing current conditions and providing a snapshot for future comparison after fire, flood, and other catastrophic events in many military range environments.

**Connley Cave 6: Chronology, Lithic Assemblage, and Future Research Directions**

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

The Connley Caves feature is discussed prominently concerning late Pleistocene and early Holocene occupations in the Great Basin. The site consists of eight south facing rockshelters overlooking Paulina Marsh in the Fort Rock Basin of central Oregon. Cave 6 was first excavated by Stephen Bedwell in 1967 as part of his dissertation research. Bedwell’s excavations produced intriguingly early radiocarbon ages and provided the basis for his Western Pluvial Lakes Tradition hypothesis; however, his findings have been questioned due to lack of precise provenience records. The Connley Caves were revisited in 2000 and 2001 by the University of Oregon Archaeology Field School with the goal of assessing the validity of Bedwell’s claims. Archaeological work carried out in Cave 6 during that time reached a depth of nearly three meters and remains largely unreported. This poster provides a synopsis of the stratigraphy, chronology, and archaeology of Connley Cave 6, and identifies new research objectives to be addressed with future fieldwork.
Thinking Outside the Trunk: Effective Archaeology Education for the 21st Century

General Session (Saturday 10:00 AM-11:15 AM, Powder Mountain-Solitude)

Since the passage of the amendments to the Archaeological Resources Protection Act in 1988, federal land-managing agencies have launched education programs to inform the public about the “significance of archaeological sites and the importance of protecting them for present and future generations.” Hundreds of other archaeology education programs have also popped up over the years, some are still with us while others have faded away. Research of formal and informal archaeology education shows that enduring understanding of archaeological concepts, culture, and preservation occurs when programs provide useful and relevant curriculum, implement assessments, and include indigenous perspectives and knowledge. The on-slot of short-term solutions will never solve the ongoing problems that threaten archaeological sites in the Great Basin and throughout the world. What is required is a long-term solution that actually helps young people develop and even change their cultural understanding. Project Archaeology paved this effective path in archaeology education 28 years ago and continues to encourage youth to be curious, reflective, and protective of places and objects that are special to others.

Kornfield, Marcel (Wyoming)
Adovasio, James M. (Director of Archaeology Senator John Heinz History Center)
Larson, Mary Lou (Wyoming)

Last Canyon Cave Perishables: Cordage and Sandals

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

A small rockshelter on the southwest edge of the Pryor Mountains of southcentral Montana, had been looted prior to its first recording in the 1970s. A possibility that further looting had occurred in the late 1990s initiated a 10-year project of investigation. Archaeological material was quite rare, however, a deep paleontological record stretches to some 80,000 years bp. Regardless of the overall paucity of cultural material, two and probably three objects are notable for their uniqueness to the Northwestern Plains and Rocky Mountains. One of these, a piece of cordage, shows connections to the Great Basin, while the other suggest the greater American Southwest as the origin of its manufacturing style. In this presentation we discuss the shelter and the implications of perishable artifacts for the Late Prehistoric period of the Plains/Rockies region.

Kunz, Ross (Idaho National Laboratory)

see Armstrong, Trent

Kuypers, Martijn (Sacramento State University)

see Allgaier, Paul

Kuypers, Martijn (Sacramento State University)

see Bradshaw, Ryan
Kuypers, Martijn (Sacramento State University)

see Elston, Robert

Laacke, Jim (Bureau of Land Management Volunteer)

see Rovanpera, Jen

Lambert, Shawn (Utah Division of State History)

Making SENSE of Archaeology: Learning with Independence

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

Imagine being a student on a field trip to a local museum full of amazing artifacts to see and visually explore. Now imagine, you have no vision. Imagine reaching out for objects about which you are excited to experience through the sense of touch to only then be blocked by inches of museum glass. There are no other accessibility resources, such as Braille, lighting, or textured components to help you access the scientific and historical information everyone else enjoys. Even if there are audio components, you get a long lecture without enjoying the same multi-sensory experience as your peers. This opportunity to learn about the cultures of the world has little to no meaning to you, and you end up spending a day listening as others “ooh” and “ah” over the woolly mammoth and shiny rocks. With a mission to develop innovative educational resources that will expand opportunities for the blind, the Public Archaeology Program within the Division of State History has partnered with the Utah School for the Blind, Utah STEM Action Center, and the Utah Blind Institute to develop the first fully 3D printed traveling archaeological exhibit specifically tailored for people with visual impairments. This exhibit will incorporate 35 3D printed artifacts representing 12,000 years of Utah history. In addition to the tactile objects, there will be audio, textures, Braille, and special lighting components, which will give exhibit-goers an unprecedented experience to access the history of their community.

Lambert, Spencer (Southern Methodist University)

Identifying the ‘Local’: The Practicality of Strontium Isotope Analysis in Fremont Archaeology

Symposium (Friday 9:00 AM-11:45 AM, Canyons)

Strontium isotope analysis has been used by archaeologists to track prehistoric human and animal migrations. The central aim of this research is to determine whether the geology of Utah is conducive for strontium isotope analysis. Strontium isotope analysis can suggest which large game individuals were obtained locally by prehistoric hunters. Very little research has been done using this technique in Utah. I tested small mammals from seven Fremont sites in Utah to compare the strontium baselines of those regions to one another. I also investigate the transport of large game by Fremont hunters at two sites: Five Finger Ridge in central Utah and Wolf Village in northern Utah. I compare strontium values from large game teeth from those sites to teeth from local small animals. My results suggest that Fremont hunters obtained at least some large game individuals from areas away from their habitations, either through trade or long-distance hunting.
The last six decades have seen significant changes in the Great Basin archaeological landscape — in the contemporary uses and exploitation of its resources, in theoretical frameworks and questions developed about ancient peoples and cultures, and in how evidence is recovered and data are generated. Now, new technologies are being applied and we are collectively making significant contributions to ‘big data’ with critically important strides toward respectful inclusion of indigenous voices and complex gendered perspectives. My contributions to this symposium will entail reflecting on changing women’s roles in our discipline and in the field, the value of mentors (both male and female), and new perspectives on how we view the Great Basin landscape in its past and present.

In the arid climate of Utah’s Uinta Basin, irrigation is the lifeblood of farming and ranching. Among the first tasks Euro-American settlers in Utah completed would be to secure water for their homestead by digging irrigation ditches. As settlers ventured further away from existing communities, creation, maintenance, and expansion of irrigation networks became a costly proposition for individuals. In response, groups of farmers and ranchers, and later incorporated irrigation companies, built a sprawling network of canals across the Basin. SWCA Environmental Consultants, on behalf of the Utah Division of State History and the Bureau of Land Management, prepared a multiple property documentation form (MPDF) intended to provide a context with which to understand and assess historic irrigation resources in the Uinta Basin. This paper will present a brief history of irrigation in Utah’s Uinta Basin, a discussion of the MPDF, and an example of how it has been applied.
The calcination of limestone within a lime kiln creates quicklime, a substance historically utilized in a variety of products and the foundation for numerous modern applications. In the 1920’s, the lime kiln recorded at site TG-577/10-TN-39 produced quicklime from limestone quarried at the site. This small operation was conducted by Ben Jones and his sons who lived in Victor, Idaho and owned the Jones Hotel. This research aims to determine the physical structure of the kiln which has now collapsed and to explore the role of quicklime within the local and regional economy.

Ligman, Michael (Logan Simpson)

*Portable XRF Analysis of Rock Art Pigments Used in Pictographs in Lincoln County, Nevada*

Symposium (Friday 1:30 PM-5:00 PM, Alta-Brighton)

Portable X-ray fluorescence (pXRF) has been used to identify the geochemical source of lithic materials across North America, but comparatively few studies apply pXRF to compositional and geochemical sourcing studies of rock art pigments. Logan Simpson conducted in situ analyses using non-invasive pXRF to analyze the elemental composition of rock art pigments used to produce prehistoric pictographs at several rock art sites across Lincoln County, Nevada. New, standardized methods were developed to conduct the pXRF analyses and these methods helped establish a basic methodology for this and future pXRF studies of rock art. Results from these analyses are also used to evaluate the potential of this type of analysis to identify the minerals used in pigments; differentiate between pigment types; and detect the work of different artists, painting events, and re-touch episodes. GIS was also used to study the relationship between rock art sites and potential sources of pigments.

Linderholm, Anna (Texas A&M University)

*see Johnson, Taryn*

Lohman, Nicole (Bureau of Land Management, Utah State Office)

*Cultural Resources in an Era of “Energy Dominance”: Process and Policy for BLM Oil and Gas Leasing*

General Session (Saturday 10:00 AM-11:15 AM, Powder Mountain-Solitude)

The Bureau of Land Management’s mission of multiple use is unique among federal agencies. Managing areas with cultural resources for multiple use is a tricky balancing act of NEPA, NHPA, Native American Consultation, Bureau directives and policy, and Statewide policy. Add public scoping and consulting parties representing the local community and special interest groups and things get even more complicated. This paper discusses the challenges associated with oil and gas lease sales that BLM cultural resource specialists face every year. Landmark and innovate approaches to cultural compliance for lease sales will be discussed including issues associated with the “keep it in the ground” movement, lease sales near national parks and monuments, and the Badger 2 Medicine case. How these lease sales have progressed has implications for future lease sales Bureau-wide. A discussion of the lease sale process for recent BLM Utah sales and their results will discuss the local implications of national policy and court decisions.

Long, Ashley (USDA Forest Service, Tahoe National Forest)
Textile and Basketry Sourcing in the Northern Great Basin: Results

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

This study examines the environmental geochemistry, strontium isotopes in particular, to establish baseline data for discrete areas within the region for the purpose of sourcing textile and basketry fragments excavated from cave environments in the Chewaucan Basin. Archaeological textiles are rarely uncovered in situ, however caves sites across the Great Basin provides the unique environments for optimal preservation, with Paisley Caves one of the most thoroughly documented. Though ethnographically people travel far and wide to gather basketry materials with specific properties for their craft, it has often been assumed in the archaeological literature that textiles are ultimately from where they had been found. Unlike other crafts, little or no trade is assumed to have occurred for materials or finished products in the deep past. These questions, as well as others regarding importance of place and harvest localities that may have implications for migration routes, can be brought into the discussion with a solid method and technique for sourcing these materials. Artifacts from the Paisley Caves are used to demonstrate the utility of strontium sourcing textile and basketry materials.

Revisiting the Blue Lake pollen core for vegetation change around Bonneville Estates Rockshelter

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

During the late Pleistocene and Holocene, the Great Basin experienced multiple periods of climate change and landscape evolution. Wetlands expanded and contracted, plant compositions and distributions changed, and range shifts and local extinctions in fauna occurred. For humans, these climate-driven environmental changes significantly impacted resource structure and availability. The late Pleistocene/early Holocene vegetation record from Blue Lake has been well-documented (e.g., Louderback and Rhode 2009, Goebel et al. 2011), but the late Holocene record has been poorly sampled. This paper will therefore report on additional pollen samples from the late Holocene record at Blue Lake. The purpose is to capture the late Holocene climatic fluctuations (i.e., Late Holocene Dry Period, Medieval Climatic Anomaly, Little Ice Age) and how they reflect the changing occupational sequence at Bonneville Estates Rockshelter.

see Pavlik, Bruce

Lupo, Karen (Southern Methodist University)
How Prestige Influences Prey Choice and Why Archeologists Should Care

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Large bodied animals are usually assumed to be the most highly valued and efficient prey item targeted by prehistoric hunters, and their abundances in zooarchaeological assemblages are often used as indices of environmental and hunting productivity. But several ethnographic studies show that large-sized prey are often associated with high acquisitions costs, especially high hunting failure rates, that render them inefficient choices relative to small-sized game. Among ethnographic hunter-gatherers, the hunting of high-cost and inefficient prey is a common pathway for gaining prestige and reputational enhancement that can translate into future support in times of uncertainty and alliances and other social benefits. These observations not only challenge the conventional wisdom that large animals always have the highest efficiency, but also that prey choice is only based on energetic efficiency. In this paper I discuss prestige hunting in the ethnographic record and highlight the value of social currencies in underwriting different dimensions of human decisions, including prey choice. While limited, these data can identify when, where and how prestige is most likely to influence prey choice as manifested in the zooarcheological record. Given their importance in the ethnographic record, social benefits should be identified as a catalyst in modeling and interpreting past human behavior.

Magargal, Kate (University of Utah)

Numic adaptations in central Nevada

Symposium (Friday 9:30 AM-11:45 AM, Arches Ballroom)

Privatization and intensification of seed resources are considered hallmarks of the Numic adaptations to the Great Basin, which allowed Numic populations to expand throughout the region in late prehistory. Additional strategies, such as a focus on harvesting pinyon nuts while the cones are green and controlled use of landscape fire have also been proposed as important to the success of the Numa. But what types of variation in these strategies existed across the Great Basin, and why? This project examines variation in subsistence strategies by modelling which subsistence strategies yield the highest returns across ecological gradients in the Great Basin. Using these model results as a basis for examining variation in the archaeological record can lend new insight into why and when these specific strategies were adopted.

Magargal, Kate (University of Utah)
Codding, Brian (University of Utah)
Zeanah, David (California State University, Sacramento)

Climate-driven subsistence transitions in Grass Valley, NV

Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

The transition from the Pleistocene to the Holocene in the Great Basin initiated drier and warmer conditions that resulted in region-wide changes in flora and fauna. Human subsistence patterns changed in response, as is evidenced by a handful of well-stratified cave sites. Here, we explore the specific causes of these subsistence transitions in Grass Valley, NV. First, we generate an estimate of how overall energetic return rates changed with the retreat of Lake Gilbert and the aridification of wetlands in Grass Valley. Next, we suggest some simple
predictions about population density and settlement patterning based on how subsistence return rates change through time across the valley. Finally, we apply the well-developed archaeological record of Grass Valley, NV to test these predictions, providing a new lens for understanding the dynamics of early human occupation in the Great Basin.

Magargal, Kate (University of Utah)

see James, L. Brock

Mansfield, Kaitlyn (University of Nevada, Reno)

see Morgan, Christopher

Martin, Erik (Far Western Anthropological Research Group, Inc.)

Where's the Beef? Prestige Hunting, Climate, and the Faunal Record

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

Competing hypotheses have been proposed to explain an increase in Late Holocene large game archaeological faunal abundances in western North America. One explanation cites growing human population densities in the region which are proposed to have increased the social benefits of costly signaling via large game hunting. The other hypothesis suggests that large game became more abundant due to Late Holocene climatic amelioration, increasing hunters’ encounter rates. However, little progress has been made in differentiating between the two in the archaeological record. This paper proposes a heuristic model to predict the costly signaling or prestige potential of prey based on opportunity costs and the skill or quality dependency of hunting. The model is applied to the faunal assemblage at Hogup Cave to evaluate these two competing hypotheses. Results from this analysis indicate decreased signaling potential of Late Holocene large game in the Hogup Cave vicinity. However, this is likely to be regionally and temporally variable, suggesting that continued discussion of this phenomenon should proceed on a site-specific basis.

McDonald, Jo (University of Western Australia)

Mobility and territoriality: understanding stylistic diversity in Great Basin Rock Art

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Ongoing theoretical debates for desert archaeology revolve around explaining stochastic hunter-gatherer cultural trajectories and understanding extreme levels of mobility. Fluctuating dietary breadth and changes to territoriality through time are critical themes for understanding how people became arid-zone hunter-gatherers. By bringing rock art analysis into this debate and by re-envisaging information exchange theory in HBE terms we can develop a more comprehensive understanding of how arid-zone hunter-gatherers manage – and depict – their social identities. Symbolic behaviour can be seen as a measure for hyper-mobility to better understand Great Basin hunter-gatherer social networks. This paper argues that rock art remains an under-utilized area in Great Basin archaeological research.
McDonough, Katelyn (Department of Anthropology, Texas A&M University, College Station, TX)

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**Caves, Coprolites, and Courage: Life Lessons from Dennis Jenkins**

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

Dennis Jenkins’ multifaceted role as Director of the University of Oregon Archaeology Field School has left profound impacts on Great Basin archaeology and beyond. With a keenness for interdisciplinary approaches and remarkable aptitude for bringing people together, Dennis is the epitome of a leader. In addition to his own research, his contributions emanate from the many students he has guided and inspired. I have had the opportunity to learn from Dennis first as a student and now as a colleague. This paper presents on research at Connelly Caves 4 and 5, where we have focused field school efforts since 2014. The Western Stemmed Tradition assemblage from Cave 4 informs on Younger Dryas occupations in the northern Great Basin. Analysis of microfossils, macrofossils, and DNA from coprolites in Cave 5 contributes a glimpse into middle Holocene subsistence. I have learned a multitude of things working alongside Dennis in high desert caves, but the encouragement to pursue this research and his lessons in leadership remain foremost in my mind.

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McDonough, Katelyn (Department of Anthropology, Texas A&M University, College Station, TX)

see Kingrey, Haden

McDowell, Patricia (Department of Geography, University of Oregon)

see Kendrick, Brianna

McGuckian, Peggy (Winnemucca BLM)

see Ataman, Kathryn

McGuire, Kelly (Far Western Anthropological Research Group, Inc.)

see Hildebrandt, William

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McQueen, Robert (Summit Envirosolutions, Inc.)

*I’m Surrounded by Sites, but is it a District?*

Symposium (Thursday 3:00 PM-4:30 PM, Powder Mountain-Solitude)

This paper looks at some recent experiences with Historic Districts, from the perspective of the CRM trenches. What exactly is a Historic District? Does my project need to go down this path? How do I know if resources contribute? How do I distinguish the NRHP eligibility of individual sites vs. districts? I will look at several recent examples from Nevada, and highlight some key considerations when introducing Historic Districts (or not) to your undertaking, including some quick thoughts on applying the NRHP criteria at the District level.
Memmott, Margo (Broadbent & Associates, Inc.)

There is Nothing in Them Thar Hills: An Assessment of the Strengths and Weaknesses of the Virginia City Sensitivity Model

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

The Sensitivity Model generated for the Virginia City Wastewater Improvement Project was designed to aid federal agencies in the management of cultural resources and inform the planning and design of proposed improvements to the Virginia City Wastewater Plant and sewer lines. The Sensitivity Model layered data from primary sources (i.e. Sanborn Fire Insurance Maps, Bird-Eye images, photographs, and newspapers), secondary sources (i.e. books, theses, and cultural resource management reports), and knowledgeable individuals. Over the course of one year we put the Sensitivity Model to the test and monitored the trenching and ground disturbing activities of construction crews as they worked to replace and improve sewer lines throughout Virginia City, Nevada. This paper will present the strengths and weaknesses of our Sensitivity Model as demonstrated by the discoveries (or lack thereof) made at the former location of six Comstock-Era mining operations. This paper will also offer discussion of how our approach might be improved and how it may be applied to other projects proposed in urban areas.

Merritt, Christopher (Utah Division of State History)

A Salty Surprise

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

In hopes of making Utah Territory seem more metropolitan and 'normal', the Church of Jesus Christ of Latter-day Saints embarked on the construction of one of the most unique resorts in all of the United States. The Saltair Resort, opened in 1893, was located deep into the briny reaches of the Great Salt Lake. Advertised for both recreation (swimming, bathing, eating, etc.) and restorative opportunities from the salty waters, the Saltair Resort’s moorish architecture ushered in a unique part of Utah history. Completely destroyed twice by conflagrations, the 1893-1970 story of the Saltair Resort is uniquely Utah, and has left a remarkable archaeological legacy. Conflicts between treasure hunters and archaeologists has also recently hit the mainstream media, and this once-forgotten resort is now again at the forefront of Utah dialogue.

Merritt, Christopher (Utah Division of State History)  
Hora-Cook, Elizabeth (Utah State Historic Preservation Office)  
Sheehan, Michael (BLM, Salt Lake Field Office)  
Bekker, Matt (BYU, Department of Geography)

Old Wood: Testing of the Transcontinental Railroad’s Woody Legacy

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

Renewed interest in the Transcontinental Railroad has resurfaced with the coming arrival of the 150th Anniversary of the completion of the line on May 10, 2019. Partnering with the Bureau of Land Management’s Salt Lake Field Office, the Utah Division of State History has coordinated new efforts investigating the story
and around the nation's first transcontinental railroad. Wood analysis and dendrochronology was employed to test extant architectural and archaeological features along the 87-mile long Transcontinental Railroad Line in Box Elder County, Utah. Testing of trestle pylons, railroad ties, and other woody samples from the archaeological and architectural sites along this stretch of public lands has helped to understand the origin of the wood used to build this one-of-a-kind resource.

Metcalfe, Duncan (Natural History Museum of Utah)

see Boomgarden, Shannon

Metcalfe, Duncan (Natural History Museum of Utah)

see Haisley, Cody

Metcalfe, Duncan (Natural History Museum of Utah)

see Simons, Ellyse

Moe, Jeanne (Utah Project Archaeology--Southern Utah University)

see Kirkley, Samantha

Morales, Anthony (California State University, Los Angeles)

An Interdisciplinary Approach to Understanding the Rose Valley Site (CA-INY-1799): A Paleoindian site in the Western Great Basin

Symposium (Saturday 9:00 AM-10:45 AM, Snowbird)

In 2017, California State University, Los Angeles, began a multi-year investigation of the Rose Valley Site (CA-INY-1799), which is recognized for its association with the Borden collection. Our study emphasizes an interdisciplinary approach that incorporates geological research and geospatial technologies to enhance our archaeological methodology. This includes the use of drones for topographical surveying, detailed mapping and recordation, subsurface soil sampling, and the use of geostatistical analyses. Utilizing this approach, we aim to further interpret the presence of archaeological resources as well as reconstruct the natural and cultural depositional processes at this highly significant site.

Morales, Anthony (California State University, Los Angeles)

see Wells, Helen

Morales, Anthony (California State University, Los Angeles)

Mansfield, Kaitlyn (University of Nevada, Reno)

The Numic Spread North of 40 Degrees: Montane Intensification Without Piñon
The principal model accounting for the Numic spread as a process hinges on widening diet breadth delivering more energy and thus a competitive advantage to Numic-speakers over their predecessors in the Great Basin. By many ethnographic and archaeological accounts, this advantage appears linked to the establishment of piñon camps in the mountains, where storage and processing of this staple nut markedly intensified in late prehistory. This engenders the question of how the Numic Spread worked north of the Humboldt River, where piñon is exceedingly rare and for the most part absent, where the Numic spread is perhaps most clearly evidenced, and where the Numic spread appears to have occurred most recently outside of California. Within this context, this paper uses environmental and ecological datasets to develop a predictive model for the process of the Numic spread in the northern Great Basin. It then provides a preliminary test of this model with extant archaeological datasets.

Nash, Robert (Desert West Environmental)

Settlement-Subsistence Strategies and Economic Stress Among the Sevier Desert Fremont

Archaeological investigations at four Fremont sites in the Sevier Desert indicate settlement-subistence strategies changed after AD 1000, shifting from short-term processing camps associated with logistical exploitation of resources to residential occupation and intensive processing of rabbits. These changes may have resulted from population growth and economic stress, which forced an expanding sedentary farming population into less desirable locations until final abandonment of the region around AD 1220. The findings presented in this paper are consistent with other research suggesting population growth and resource depression occurred during the Late Fremont period, and provide important insight to prehistoric adaptations in the Sevier Desert during this time.

Nelson, Michelle (Utah State University Luminescence Laboratory)

see Ideker, Carlie

Newell, Marianne (University of Utah)

Reconstructing Lake Bonneville: An Analysis of Lake Core Collected Near Fish Springs Wildlife Refuge

This project focuses on paleoenvironmental reconstructions of ancient Lake Bonneville through lake sediment analysis. X-ray fluorescence, magnetic susceptibility, and loss on ignition show us the elemental signature of the sediment, amount of iron-bearing sediments, and the organic carbon and carbonate components of the sediment. Charcoal examinations show us past wildfire occurrences through presence and abundance of charcoal particles within the sediment. Charcoal can also indicate past human presence. Pollen grains are identified through microscopy to the plant’s family level, sometimes down to genus or species. Data from these analyses help us to interpret past ecology, climate, disturbance events, and the lake chronology. To examine a
prehistoric lake as large as Lake Bonneville, it is crucial to collect samples from as many locations as possible. This project is part of a larger study using several cores throughout the Bonneville Basin. The data for this research has been collected from core LCFSN16, which is located at the edge of prehistoric Lake Bonneville and Lake Gilbert near current Fish Springs Wildlife Refuge. This site could have archeological significance as it is a large water source within the Great Basin.

Norton, Tammara (Far Western Anthropological Research Group)
Gross, Phil (Cinnabar Video)

A Point in Time - A Documentary Film

Symposium (Friday 1:30 PM-5:00 PM, Alta-Brighton)

Film crews followed Far Western researchers in 2016 and 2017 as they used time-tested field methods in tandem with high-tech mapping and computer modeling to uncover new information about some of the earliest inhabitants of the Great Basin. A Point in Time is the resulting 46-minute public education documentary. Far Western Art Director Tammara Norton served as Executive Producer and Production Manager, and Phil Gross of Cinnabar Video directed the film.

Nulty, Michael (Center of Preservation Research, UC Denver)

see Ringhoff, Mary

O’Connell, James (University of Utah)

see Hart, Isaac

O’Connor-Coates, Chris (University of Utah)
James, L. Brock (University of Utah)

Expedient tools: an experimental test of the accuracy of field identification for use-wear

Symposium (Thursday 1:00 PM-3:15 PM, Deer Valley)

The patterns of expedient stone tool use provide methods to understanding the resource utilization decisions made by prehistoric humans. While archaeologists have thoroughly studied evidence of use-wear on expedient tools with the intention of identifying the patterns associated with specific activities, relatively little work has been done regarding the large scale distribution of expedient tool usage. The methods used in most use-wear studies require equipment too cumbersome to be used in the field, requiring artifact collection for laboratory analysis. This project tests the efficacy of methods that provide coarser grained but wider reaching data that can be efficiently collected in a fieldwork setting, allowing for far larger sample sizes, and decreased invasive impacts on the sites being studied.

Ogaz, Andrea (California State University, Los Angeles)
Revisiting the Archaeology of Dry Lake Cave (CA-INY-1898)

Symposium (Saturday 9:00 AM-10:45 AM, Snowbird)

In 1950, University of California, Los Angeles (UCLA) graduate student, Georgiana Guthrie excavated Dry Lake Cave (CA-INY-1898). Located in Inyo County, the rock shelter is close to Little Lake, the Stahl site, the Rose Spring site, and the Borden site. The basalt rock shelter looks east over Rose Valley, providing the occupants with a broad view of the valley floor. Guthrie led site excavations at Dry Lake Cave on weekends while working at the Stahl Site. Her original field notes have been preserved at UCLA along with the unanalyzed collection. The assemblage contains projectile points and other chipped stone tools, ground stone, shell beads, faunal remains, basketry fragments and other perishables. Diagnostic points suggest Rose Spring and Late Prehistoric occupations. As a preliminary report on Guthrie’s investigation, this paper seeks to understand the functional use of the site and its relationship to larger sites in the valley with the same chronology.

O’Grady, Patrick (University of Oregon)

Windstorms and Wildfires: 15 Years in the Field with Scott Thomas

Symposium (Friday 1:00 PM-3:15 PM, Arches Ballroom)

Scott Thomas retired from his position as the District Archaeologist for the Burns BLM on August 31, 2018. During his tenure, he created innovative programs for researching the archaeology of his district that will stand as textbook examples of how agency/academic collaborations should be done. He developed alliances with avocational clubs and universities to get the work done, and with members of the local community to gather historical knowledge regarding sites and regions of interest to researchers. Thomas sponsored projects ranging from Pioneer to Paleoamerican and as diverse as restoring historic buildings to long term excavations at pre-Clovis rockshelters. This presentation focuses on the collaborative relationship between the Burns BLM and the University of Oregon. It provides an informal, historic, and appreciative overview of the projects, people, and public outreach over a 15 year span…under a variety of conditions.

O’Grady, Patrick (University of Oregon)

When the Silver is Gone: A History of Farming and Ranching in Lincoln County, Nevada

Symposium (Friday 1:30 PM-5:00 PM, Alta-Brighton)

Mining has been the most obvious shaper of history in Lincoln County, Nevada, but true to course, it has proved fleeting. And although raising hay, vegetables, and livestock is hardly as exciting as striking a lode of ore, farming and ranching have sustained the county and remain its economic mainstays today. Initial Euro-American settlement in the county took the form of Mormon agricultural communities, but the discovery of silver in the 1860s quickly led to a mining boom. Over the next 50 years, new bonanzas brought large numbers of
prospectors and miners, who created a market for agricultural goods from the Mormon settlements. After the busts, the farmers and ranchers endured, and their persistence underlies much of the regional experience. What sets Lincoln County apart is the legacy of Mormon culture and settlement, differentiating it from ranching and farming regions in other parts of the state that were dominated by non-Mormons. Despite the importance of agriculture in Lincoln County, mining has been the focus of most scholarly research. To address this gap, SWCA researched and wrote a ranching and farming context that explores the history of agriculture in Lincoln County between 1857 and 1934, when the passage of the Taylor Grazing Act ended open-range grazing and began an era of federal regulation and management. This paper presents the results of our work, which included archival research, archeological survey, oral interviews, characterization of cultural landscapes and historic property types, and creation of a framework for evaluating the significance, integrity, and National Register eligibility of agricultural resources. Ultimately, the context provides a tool for managing the archaeological record of agriculture in Lincoln County.

Oliver, Anne (SWCA)

see Hovanes, Kaitlin

Ollivier, Aaron (Logan Simpson)

Of Gambel Oak and Coral Pink Sand: New Insights into Virgin Branch Puebloan Settlement on the Western Grand Staircase

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

The areas occupied by the Virgin Branch Puebloans (VBP) represent one of the least studied regions of the southwest. This is especially true on the Grand Staircase of southern Utah, a portion of their territory continuously occupied for over a thousand years (McFadden 2016; Spangler 2000). Overall, minimal research has been undertaken in this area. Of the work that has been conducted, the majority has been management-related surveys. Datasets resulting from such projects are well-suited, and have been primarily applied, to the study of regional culture history and site distributions. McFadden (1994, 1996, 1998, 2002) generated a model of VBP settlement using such data. This model posited that VBPs were agriculturally dependent, sedentary, and that settlements shifted between the arable zones of the Grand Staircase. These assertions were based primarily on the preponderance of VBP sites displaying architectural features in McFadden’s (1996) study areas. Recently, however, multiple intensive surveys have been conducted by Logan Simpson on the western Grand Staircase that display a different pattern. These surveys, totaling greater than 15,000 acres, have produced results capable of testing prior assumptions regarding the nature of VBP settlement. Using site locations and distributions, site attributes, and regional environmental data, we critically evaluate the current model of VBP settlement on the Grand Staircase.

O’Rourke, Makaela (Utah State University)
Finley, Judson (Utah State University)
Thomas, Scott (Bureau of Land Management)
Ideker, Carlie (Utah State University Luminescence Lab)
Rittenour, Tammy (Utah State University Geology Department and Luminescence Laboratory)
Native American pottery is very rare in the northwest Great Basin, with only three sites containing pottery in southeastern Oregon. Excavations at the Skull Creek Dunes site in Catlow Valley resulted in the recovery of 210 under-fired greyware pottery sherds. Reconstruction of the vessels shows these may have been seed jars not characteristic of flat-bottomed brownware typical of Great Basin Shoshone assemblages. Here we present the results of preliminary petrographic analysis on the sherds to confirm the manufacturing location to be either on site or possibly local to Catlow Valley. We also report initial results of luminescence dating and explore the benefits and limitations of luminescence dating on under-fired pottery. Preliminary ages are much older than that of the formation of the dune the site is located on, which can be a result of under-fired sherds or partial bleaching of the sample.

Owens, Andrew Edward (Utah State University)

A New Approach to Bison Specimen Aging and Theory

General Session (Thursday 1:15 PM-3:45 PM, Canyons)

This is the third and final multi-media/video installment that reveals a new GIS-based bison tooth specimen aging methodology. Comprehensive statistical results are discussed regarding the new methodology including methodological accuracy, precision, and interobserver replicability. Most importantly, theoretical considerations and future anthropological modeling concepts and applications are discussed that critique and expound on current bison hunting insights. This talk promises to entertain and inform, and ultimately addresses contemporary bison hunting research shortcomings and misgivings.

Parr, Robert (CSU Bakersfield)

see Jones, Kara

Parsons-Bernstein, Justina (Utah Division of State Parks and Recreation)

see Rood, Ronald

Pavlik, Bruce (Red Butte Garden, University of Utah)
Louderback, Lisbeth (Natural History Museum of Utah, University of Utah)
Codding, Brian (University of Utah)

Archaeo-ecosystem Surveys of Puebloan Sites in Bears Ears, Southeast Utah

General Session (Friday 1:30 PM-3:30 PM, Snowbird)
The Bears Ears region of southeast Utah contains one of the most significant archaeological, ecological and cultural landscapes in North America. With more than a hundred thousand archaeological sites, it is profoundly important to Native American Tribes that have long valued its botanical treasures. In conjunction with the BLM, NHMU, RBG, UofU, UUAC, and Bears Ears Commission, we conducted an archaeo-ecosystem survey of 15 cultural sites across Bears Ears during 2017-2018. Among the 15 sites we recorded a total of 79 plant species of ethnographic significance, having documented food, medicine, ceremonial and utilitarian uses by Navajo, Hopi, Ute, Zuni and Apache people. The widest array of species and uses was associated with the Navajo, but this might be an artifact of how well their botanical knowledge has been ethnographically documented in comparison to other Tribes. Analysis by site revealed the range of ethnographic species richness (ESR) to be between four and twenty-five, the highest recorded at the often-visited House on Fire complex. ESR was not significantly correlated with survey area, elevation or latitude, but was significantly correlated with a longitudinal zone encompassing the great canyons of central Bears Ears (e.g. Mule, Arch, Dry and Cottonwood canyons). In terms of archeological characteristics, high ESR was associated with dense, rather than extensive or complex, habitation features. Results from this pilot study will inform future efforts to add more sites across the region, improve sampling methods and make practical recommendations for managing archaeo-ecosystem resources in the face of ever-growing impacts from increasing human visitation.

Pederson, Joel (Dept of Geology Utah State University)
see Cannon, Kenneth

Pollock, Alain (Broadbent & Associates, Inc.)

How to Record 15 Sites on One Form: Managing the Virginia City Historic District
Symposium (Thursday 3:00 PM-4:30 PM, Powder Mountain-Solitude)

This paper presents a case study in managing the Virginia City Historic District (VCHD), a historic property hydra composed of the Virginia City National Register District, the Comstock Historic District, and the Virginia City National Historic Landmark. The overlapping (but not identical) boundaries of these locally and nationally recognized resources contain a small but vibrant community that has transformed from an industrial mining town to a popular tourist attraction. Broadbent & Associates, Inc. has recently competed twelve months of archaeological monitoring in Virginia City, concluding the six-year Virginia City Wastewater Improvement Project. The project replaced the town’s outdated sewer system – and in the process, exposed a grid of excavation trenches in an expansive archaeological resource. In creating our final report, documenting six years of findings, we had three goals in mind in our approach to creating our deliverable: 1. meet varying legal requirements; 2. assist future archaeologists and researchers; and 3. engage the community at the center of the work. In order to address all three goals, we determined that the best tool for the job was not the ubiquitous IMACS and ARA forms, but rather the National Register Nomination itself. The Nomination form allowed us to treat the resources we encountered in the streets of Virginia City at a landscape level, and to refine our archaeological sensitivity model for the District. I present a summary of the project, the problems, and the process of consolidation that allowed us to record 15 sites and 36 features in just one document.

Porter-Rodriguez, Jessica (Redhorse Corporation)
Pratt, Jordan (Texas A&M University)
O’Grady, Patrick (University of Oregon)

Diverse Stakeholders: Letters in Support of Scott Thomas
Symposium (Friday 1:00 PM-3:15 PM, Arches Ballroom)

Scott Thomas (Burns BLM, District Archaeologist) has worked with a myriad of stakeholders and individuals throughout his distinguished career. This paper compiles letters of support from those individuals who were unable to attend the conference but wanted to honor Scott’s contributions.

Pratt, Jordan (Texas A&M University)

Exploring the Age of two Western Stemmed Tradition sites (Nials and Weed Lake Ditch), Harney Basin, Oregon
Symposium (Friday 1:00 PM-3:15 PM, Arches Ballroom)

First American archaeologists are increasingly interested in the relationship between Western stemmed point technology (WST) and other Paleoindian lithic technologies, including Clovis. While there is some evidence of WST dating as early as 14,000 years before present, most sites lack reliable geolarchaeological and geochronological evidence. In the late 1990s and early 2000s the University of Nevada Reno excavated several stratified open-air WST sites in Oregon along the southern shoreline of Harney Lake, including the Weed Lake Ditch, Biting Fly, and Nials sites. Initial attempts to radiocarbon date the cultural layers either failed or were unreliable, therefore the Center for the Study of the First Americans returned to the sites in 2017 and 2018 with the goal of establishing their ages, as well as describing and interpreting the geolarchaeological and lithic materials. The research presented here reviews this ongoing research, which was made possible with the help and cooperation of Scott Thomas, the district archaeologist at the Burns Bureau of Land Management. New radiocarbon dates indicate the sites were occupied at least 12,000 years ago. This coupled with lithic technological analysis is used to more clearly understand WST occupations in the Harney Basin, Oregon.

Rapleye, Anali (Utah Division of State History)
The Scenic Route: Historic Filming Locations in Utah
General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

Utah has been a home to the Hollywood film industry since the 1920s. The unique and iconic landscape has given filmmakers and producers incredible options to make the most out of the scenes in their movies. The Utah Division of /state History’s Antiquities Section has been able to identify the locations of 570 films and counting. This research has given us enough data to see the trends of the industry over time from location preference to shifts in movie genres, such as the early dominance of Westerns in southern Utah to comedies, horror, and drama dominating now along the Wasatch Front. It is important to know where these film sites are in order to properly
understand the full context and history of a space. These early locations are now a part of the archaeological record as sets have been abandoned and forgotten.

Rathbone, Stuart (Broadbent)

Investigations at Truckee Railyard, California. Two starts, three middles and an end that hasn’t lasted.

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

Truckee Railyard is located to the north of the Truckee River, at the eastern end of Truckee, California. The site is close to the confluence of the Truckee River and Trout Creek, which is the suspected location of a prehistoric settlement. An ethnographic village site, ‘Pele ma’l am detde’yi’ was also located in this area. The corridor of the Overland Trail runs across the western portion of the site, representing the initial use of the area by Euro-Americans. In the 1860’s a railyard was constructed which, over the course of 90 years, featured three successive roundhouses, a balloon track, and various ice ponds, ice houses, warehouses and workshops. By the mid 20th century most of the railyard had become redundant and many of the buildings and structures were demolished. The site was then utilized as a lumber mill, which operated from 1955 until 1989. A large part of the Railyard site is currently being redeveloped as a substantial mixed-use expansion to the town of Truckee. This paper reviews the archaeological evidence of this succession of activities and examines the way that repeating cycles of building construction, use and demolition have created areas of complete disturbance interspersed with areas of excellent preservation, which include the 190 ft diameter foundations of the third roundhouse. The concluding section considers how the current redevelopment is deliberately contributing to the further fragmentation of the site’s archaeological remains, and how links to earlier periods of activity on the site are being incorporated into the new designs.

Rauch, Reba (University of Utah Press)

Great Basin Women Scholars: A View Through the University of Utah Anthropological Papers

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

The University of Utah Anthropological Papers have been officially published under this name since 1950, with 130 volumes produced during this time. A review of series gender metrics and the women who were lead authors in these volumes will be discussed, with emphasis placed on their work and contribution to the discipline. Aspects of the personal journey from archaeologist to acquisitions editor for this series will also be shared.

Reaux, Derek (University of Nevada, Reno)
Smith, Geoffrey (University of Nevada, Reno)

Diachronic Variability in Toolstone Use in the Catnip Creek Delta, Guano Valley, Oregon

Symposium (Thursday 1:00 PM-3:15 PM, Deer Valley)

Guano Valley is a relatively small basin that straddles the southeast Oregon and northwest Nevada border. The Catnip Creek Delta (CCD), located in the southern portion of the valley, represents an extensive relict delta
system that would have likely fostered a rich riparian habitat during wet periods in the past. Two years of work by the University of Nevada, Reno has revealed a substantial record of human occupation associated with the CCD spanning the Terminal Pleistocene to the Late Holocene. In this paper, we examine how toolstone procurement strategies changed across time through an X-ray fluorescence spectrometry (XRF) analysis of nearly 800 projectile points found within the CCD. We compare these results to similar studies conducted in the northwest Great Basin and discuss their impact on our understanding of prehistoric lithic procurement and mobility strategies in the region.

Reaux, Derek (University of Nevada, Reno)

see Sturtz, Sara N.

Reid, Kenneth (Retired Idaho State Historical Society)

Symposium Discussant

Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

Reid, Kenneth (Retired Idaho State Historical Society)

see Cannon, Kenneth

Rhode, David (Desert Research Institute)

_Dietary Inferences from the Bonneville Estates Rockshelter Archaeobotanical Record_

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

Bonneville Estates Rockshelter, a large dry shelter on the western margin of the Great Salt Lake Desert, preserves a rich archive of plant remains dating through the last 15,000 years, which provide a valuable record of plant use by people inhabiting the shelter. Here I focus on what the plant materials tell us about changing diets of the occupants of the shelter from late Pleistocene/early Holocene times to the late prehistoric period.

Rhode, David (Desert Research Institute)

_Plant Use at Late Holocene Sites in the White Mountains, eastern California_

Symposium (Friday 9:30 AM-11:45 AM, Arches Ballroom)

Late Holocene hunting-based occupations in the high White Mountains of eastern California also contain remains of plants used for food and fuel that provide information about changing diet and use of the alpine zone. Examination of plant materials from a dozen different alpine White Mountains occupations reveals a nuanced sequence of plant use through the late Holocene. Here I discuss the White Mountains archaeobotanical record and its implications for late Holocene subsistence and land use changes.

Rhode, David (Desert Research Institute)
Fremont archaeologists have generally focused on sites or features as units of analysis. Especially when studying villages, the natural and cultural landscapes within which villages are located have rarely been studied. But many Native American groups imbue the landscapes that surround them with cultural and religious meaning, and these meanings are often materialized in rock art, alignment with celestial phenomena or prominent geographic features, or repeated use of locations that are meaningful because of their associations with ancestors or mythology. Discerning these meanings is difficult, particularly without ethnographic continuity, but we examine Fremont cultural landscapes from the perspective of several Fremont villages. More specifically, we examine the alignment of buildings within Fremont villages, which are strongly patterned but vary from one village to another, as well as the rock art and other sites in their immediate vicinity. These demonstrate that, as for societies across the Greater Southwest, cardinal directions and landscape features were important to Fremont worldviews.

Ringhoff, Mary (Architectural Resources Group)
Ausloos-Bedinger, Julia (Architectural Resources Group)
Nulty, Michael (Center of Preservation Research, UC Denver)

3D Documentation at Three Lincoln County Sites

Symposium (Friday 1:30 PM-5:00 PM, Alta-Brighton)

Three-dimensional documentation techniques have found increasingly common use in the fields of archaeology and historic preservation, allowing the detailed capture of data in sites that are complex, threatened, or difficult to access. A team led by Architectural Resources Group recently completed the fieldwork for an LCAI pilot study examining the utility of 3D techniques in documenting cultural resources in Lincoln County. LiDAR (laser scanning), photogrammetry, and 360-degree panoramic photography were used to document portions of three sites: historic structures at the Crescent City mining/milling site, and rock art panels at two sites in the Mt. Irish and Shooting Gallery Archaeological Districts. This paper reports on the methodology and preliminary results of the 3D documentation, and outlines how the data will be processed and used to create an interpretive database for the BLM.

Rittenour, Tammy (Utah State University Geology Department and Luminescence Laboratory)
Seldom Seen: A Look at Petroglyphs and Pictographs on the Nevada Test and Training Range

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

Far Western is conducting comprehensive documentation of known rock art sites on the Nevada Test and Training Range. Security restrictions on the NTTR and rugged terrain make these sites extremely difficult to reach and inaccessible to most people. Less than half of the known sites have received thorough recording, and many of those treatments were accomplished two decades ago. The current project seeks to provide preservation of and virtual access to the rock art in these restricted areas via enhanced photography, to incorporate Native American perspectives on the sites, and to place the rock art in its wider archaeological context. This is accomplished via surveys and updated recording of sites and artifacts associated with the known petroglyphs and pictographs, high resolution photography cross-referenced with high-accuracy GPS mapping of rock art panels, and the involvement of Native American monitors during the site survey and recordation.

The Quick and the Dead: The Showdown between the Sexes in Great Basin Anthropology

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

Who can forget that iconic duel: Sharon Stone, spurs clinking, stares down Gene Hackman and divulges why she must defeat him. “You ruined my life.” Then the clock strikes and she’s victorious, a powerful woman conquers the West. Until the 1970s many women were discouraged, or outright prevented, from becoming Great Basin archaeologists. As late as 1977, my archaeology professor was skeptical that he should “waste” his efforts training me because he saw motherhood in my future. There were moments when I felt that he almost ruined my life. This paper honors the accomplishments of three of my mentors—all women—who because of their talent and determination made my career possible. They fought for women to become archaeologists and won the duel.
Excavation of Three Fremont Brush Shelters in the Mahogany Mountains North of Modena in Iron County, Utah.

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

In the summer of 2016 HRA conducted data recovery investigations at three prehistoric sites located approximately 15 miles north of Modena, Utah. The remains of three bush shelters associated with Fremont pottery were identified just below the modern surface in concentrations of ground stone, fire-cracked rock, and flaked stone tools. Radiocarbon dates suggest the sites were occupied between A.D. 1000 and 1700. This paper describes these structures and the associated macrobotanical evidence, faunal remains, radiocarbon dates, and artifacts. Together these data suggest that Fremont groups occupied the area’s dense pinyon groves in the fall to gather nuts and hunt large game, much like Southern Paiute Bands during the historic period.

Roberts, Heidi (HRA Inc.)

see Hardin, Keith

Robinson, Erick (University of Wyoming)
Kelly, Robert L. (University of Wyoming)

Radiocarbon Big Data and Holocene Population Dynamics in the Great Basin

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

A central question in Great Basin archaeology has been the role of human population growth, decline and migration throughout the Holocene. Advancing knowledge on these complex diachronic processes require moving away from traditional chronological models based on time separated by segmented stages, toward a more continuous chronological model (Beck 1999). Possibilities for building a continuous chronological model have been limited due to the lack of a uniform type of data present throughout the Great Basin that can be analyzed as a continuous time-series. In recent years our ability to build a continuous chronological model for the Great Basin has been drastically improved by the increasing availability of large radiocarbon datasets. Diachronic frequency distributions of radiocarbon dates can provide one of the most powerful proxies for prehistoric human biogeography available. In this presentation we present recent work to build a radiocarbon database for the US. Radiocarbon time-series are developed and analyzed for Great Basin states and neighboring states in order to understand population growth, decline and migration into and out of the Basin throughout the Holocene. The time-series presented highlight major macro-scale patterns that can be compared against traditional understandings of population dynamics, as well as used to understand how social-ecological processes in the Great Basin interacted with broader, continental scale processes.

Robinson, Erick (University of Wyoming)

see Bird, Darcy

Robinson, Erick (University of Wyoming)
The Coso petroglyph field in southern Inyo County, California, is the most extensive rock art region in the western hemisphere. Although some images probably date back to the Paleoindian period, the majority were probably created between 3,000 and 1,000 years ago. Some of the images resemble rock art of the Bishop Tablelands in California and the Eastern Shoshone art of Wyoming. Based on linguistic and archaeological models we suggest speakers of a proto-Uto-Aztecan language migrated northward before 5,000 years ago from Mexico, and some of them subsequently expanded to California. These peoples arrived in eastern California around 4000 - 3500 years ago, and were the creators of the Coso rock art. They subsequently moved into the Great Basin as the "Numic spread", carrying their rock art tradition to Wyoming. They were also the vectors for teosinte/maize and coccidiodomycosis (valley fever).

Sixty-three obsidian specimens from Bonneville Estates Rockshelter were cut and read for obsidian hydration dating (OHD). All specimens were geochemically sourced by XRF to Browns Bench in northern Nevada-Utah and Topaz Mountain in western Utah. The hydration rate for Topaz Mountain is already known, but the rate for Browns Bench is determined here by obsidian rim-radiocarbon association. Ages for both geochemical sources show increasing and predictable age with subsurface depth. We will present our hydration rates, and discuss the implications of our findings with regard to the distribution of artifacts in the shelter and the broader use of OHD in the region.

Collaborative efforts between Scott Thomas and the author have spanned more than a decade resulting in 20 studies of flaked stone from the Burns BLM District. While most of these studies have involved fluted points, other periods and other aspects of lithic technology have been explored. These studies are summarized and substantive results presented.
see George, Nicole

Rood, Ronald (Metcalf Archaeological Consultants, Inc.)
Parsons-Bernstein, Justina (Utah Division of State Parks and Recreation)

Archaeological Outreach and Heritage Tourism at Danger Cave State Park Heritage Area

General Session (Saturday 10:00 AM-11:15 AM, Powder Mountain-Solitude)

In 2018 the Utah Division of State Parks entered into a contract with Metcalf Archaeological Consultants, Inc. to provide heritage tourism and stewardship at Danger Cave State Park Heritage area just east of Wendover, Utah. Danger Cave, arguably one of the most important sites in the eastern Great Basin, is an icon of Great Basin archaeology and in many ways is a perfect site for educating the public about archaeology, anthropology, heritage preservation and stewardship. Tours are provided on a monthly basis for nominal fees where visitors can visit Danger Cave, Jukebox Cave and Madsen’s and Curry’s old trench at the base of Jukebox to look at Lake Bonneville deposition, marsh deposition, and Mazama Ash. In Jukebox Cave, the relationship between the cave and the Army Air Corps rich history at the Wendover Air Base come together in one package; not to mention the historic Native American rock art in Jukebox. Metcalf’s efforts at Danger Cave State Park Heritage area merge the science of archaeology with local and national history creating a positive visitor experiences.

Rosa Figueroa, Jeffrey (California State University, Los Angeles)

Still Relevant: Applying the Monitor Valley Key to a Recently Recovered Collection of Projectile Points Found in Monitor Valley, Nevada

Symposium (Saturday 9:00 AM-10:45 AM, Snowbird)

The Zumstein Collection, consisting of artifacts from various locations in eastern California and central Nevada, was recently received by the Bureau of Land Management (BLM) Bishop Field Office. The BLM gave CalStateLA students the opportunity to analyze a portion of this material, consisting of projectile points and other chipped stone artifacts that the collector had stored in small boxes labeled Monitor Valley. The Monitor Valley classification system, originally developed by David Hurst Thomas (1981), and subsequently modified by Thomas and his colleagues, was employed to measure and classify the projectile points in this collection. The full range of point types identified by Thomas for central Nevada is represented. Thirty-seven obsidian specimens were submitted for sourcing.

Rosencrance, Richard (Department of Anthropology, University of Nevada, Reno)

Taking on a Mountain: Learning the Value of Reinvestigating Old Sites and New 14C Dates from Cougar Mountain Cave, Oregon

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

Great Basin rockshelters have suffered greatly from the growing pains of our discipline and the careless efforts of artifact collectors. Dennis Jenkins’ greatest contributions have arguably come from the reinvestigation of previously excavated rockshelters and caves in the Northern Great Basin that many researchers believed were
either entirely destroyed or too difficult of a task to be worth the effort. Digging through backdirt with Dennis has taught me many things about archaeology, diligence, and leadership. This paper presents results from our newest efforts to reinvestigate Cougar Mountain Cave, one of the most important sites in the Great Basin that was significantly destroyed in the 1950s. Using unpublished field notes and materials recovered from small-scale excavations in the 1960s we obtained new 14C dates that indicate a minimum Younger Dryas (YD) age for the upper portion of the lowest stratum. These data suggest that undisturbed deposits remain at Cougar Mountain Cave and that there may be evidence for pre-YD occupations at the site. Reinvestigating Cougar Mountain Cave holds many obstacles, but as Dennis’ has taught us all, conquering a mountainous obstacle can yield mountainous results.

Rosencrance, Richard (Department of Anthropology, University of Nevada, Reno)

see Hockett, Bryan

Rosencrance, Richard (Department of Anthropology, University of Nevada, Reno)

see Kingrey, Haden

Rosencrance, Richard (Department of Anthropology, University of Nevada, Reno)

see Sturtz, Sara N.

Ross-Hauer, Joellen (ARH Archaeology & Architectural History)

Mining & Mercury in Nevada: a Retort in the Bare Mountains, Nye County

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

The mercury retort is a little known, but commonly occurring resource in Nevada, often misidentified in the archaeological record. This paper attempts to shed some light on the types of retorts found in Nevada, and how to identify them. A case study of a mercury retort found on the Telluride Mine in the Fluorine Mining District near Beatty, Nye County, is used to compare and contrast retort types found elsewhere in Nevada. The history of mercury production in the region is also examined.

Rovanpera, Jen (Bureau of Land Management)
Laacke, Jim (Bureau of Land Management Volunteer)

Is Rock Art in the Surprise Resource Area Predictable?

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

The Surprise Resource Area, located in northwestern Nevada and northeastern California, contains more than 150 known rock art sites comprising thousands of petroglyphs and a few pictographs. This paper explores the preliminary results of a rock art predicative model in this region, the potential use of such a model for cultural
resource management, and whether insights into the cognitive landscape can be gleaned from a purely quantitative approach.

Rust, Jeffrey (Ashley National Forest)

Brush Fences of the Uinta Ute

General Session (Friday 1:30 PM-3:30 PM, Snowbird)

Multiple brush fences have been found on ridges of the southern slopes of the Uinta Basin. All appear to be used for managing, herding, and capturing animals - most likely horses. The majority of brush fences are constructed by weaving uprooted local pinyon and juniper trees among living trees, rocks, and other landscape features. These features have been constructed using a common pattern, but are located in a variety of landscapes. They date from the late 1700s to the early 1900s and can help us understand how Uinta Utes were managing herd animals before Euro-Americans arrived in the area.

Saban, Chantel (Environmental Change Research Group - Dept. of Geography - University of Oregon)

Humans and Climate: Current Findings on Paleoecology from Two Northern Great Basin Lakes

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

Climate shifts at end of the Pleistocene not only influenced the ecology of landscape, the shifts also influenced people’s decision making and foraging strategies. Much of the ecological research that has come out of the Northern Great Basin has focused on materials recovered from archaeological sites, but to what degree is what is recovered from archaeological sites accurate in describing the larger ecological picture? This report explores paleoecological findings from two natural lake sites: Dog Lake and White Pine Marsh, and how those findings fit into what is known about human activity in the Northern Great Basin region.

Saldaña, Melanie (California State University, Los Angeles)

Sanchez, Gabriel (Department of Anthropology, University of California Berkeley)

Zooarchaeological Analysis of Vertebrate Remains from Connley Caves (3SLK50) Cave 4

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

This paper presents preliminary insights into the Connley Caves Cave 4 faunal assemblage. Previous studies of vertebrate faunas from the Fort Rock Basin and Connley Caves (Caves 3-6) have contributed to our understanding of biogeographic shifts and fluctuations in the relative abundances of avian and mammalian organisms. Prior analyses of vertebrate remains from Connley Caves resulted from coarse-grained excavations, with sediments screened over ¼ in sieves, potentially affecting the representation of organisms important for subsistence studies and paleoenvironmental reconstructions. Recent excavations applying standard recovery
methods and sampling strategies provide the opportunity to reevaluate earlier analyses and offer new interpretations regarding human and non-human occupations of the cave.

Santarone, Paul (Cannon Heritage Consultants)
Corn, Tyrone (Idaho Power Company)
Cannon, Kenneth (Cannon Heritage Consultants)

Results of Salvage Excavations at 10AA190, Ada County, Idaho

Symposium (Saturday 9:30 AM-11:00 AM, Arches Ballroom)

In 2014 the Idaho Power Company conducted excavations at 10AA199, a prehistoric site located on the Snake River, near Swan Falls, in Ada County, Idaho. These excavations were prompted by the exposure of buried cultural features, during the construction of improvements to recreation facilities located at the site. Excavations uncovered ten cultural features, consisting of FCR, mussel shell, faunal material, debitage and tools. Cannon Heritage Consultants were tasked with the analysis of the assemblage from these excavations. Radiometric dating, geochemical sourcing, lithic and faunal analysis indicates that the features uncovered at 10AA199 present an unusual window in the life at this site within a relatively short period of time c. 1270 RCYBP. This paper presents an overview of these excavations at 10AA199 and their results.

Santarone, Paul (Cannon Heritage Consultants)
Corn, Tyrone (Idaho Power Company)
Cannon, Kenneth (Cannon Heritage Consultants)

The Excavation of Midden Features along the Snake River at Swan Falls, Idaho

General Session (Friday 9:00 AM-11:45 AM, Alta-Brighton)

In 2014 the Idaho Power Company conducted excavations at 10AA199, a prehistoric site located on the Snake River, near Swan Falls, in Ada County, Idaho. These excavations were prompted by the exposure of buried cultural features, during the construction of improvements to recreation facilities located at the site. Excavations uncovered ten cultural features, consisting of FCR, mussel shell, faunal material, debitage and tools. Cannon Heritage Consultants were tasked with the analysis of the assemblage from these excavations. Radiometric dating, geochemical sourcing, lithic and faunal analysis indicates that the features uncovered at 10AA199 present an unusual window in the life at this site within a relatively short period of time c. 1270 RCYBP. This paper presents an overview of these excavations at 10AA199 and their results.

Schiele, Trista (Utah State University)

A Preliminary Prehistoric Archaeological Site Predictive Model for Dinosaur National Monument

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

I present the methodology and interim results of a prehistoric archaeological site predictive model at Dinosaur National Monument. This model was created to aid in identifying possible areas of high site potential park-wide, prioritize initial survey activities, estimate time and personnel requirements, and scheduling field activities for
proposed projects that will be conducted by Utah State University archaeologists and students. The impetus for creating such a model arose from the agency’s need to fulfill the requirements of 36 CFR 800 and revised regulations in identifying historic properties in order to decide whether to reissue certain grazing permits located in regions of the monument that have never been surveyed for historic properties. In this model, I have identified 6 major archaeological site types and their relationships to 6 different environmental, geographical, and geological variables. Based on these relationships, I defined parameters for six separate models that predict site occurrence across the landscape based on site type in a visually engaging heatmap. While early examination of these preliminary results shows some correlation with known site locations, the need to field test the model is evident. The next phase of this project is to use this data while conducting pedestrian survey of the proposed grazing allotment areas at Dinosaur National Monument. The survey will seek to achieve 100% coverage of the area following UT SHPO intensive survey standards and, in the process, test whether the model accurately predicts archaeological site occurrence in this region where historic property occurrence is completely unknown.

Schmitt, Dave (SMU)

Small-mammal remains as indicators of fossil accumulative mechanisms and changes in regional moisture and biotic communities at Bonneville Estates Rockshelter

Symposium (Saturday 8:00 AM-11:30 AM, Deer Valley)

Changes in the types and abundances of small-mammal remains from stratified deposits can provide evidence for accumulative mechanisms and changing environs and the assemblages from Bonneville Estates prove no exception. Collections from large-scale excavations recovered a variety of generalists, species adapted to warm and dry habitats, and taxa who prefer mesic contexts. The abundances of rodent bones and teeth are significantly smaller than assemblages from other sheltered sites in the region and suggest the shelter rarely hosted predators whose primary prey were rodents. Although modest in size, temporal transformations in small-mammal types and abundances mark significant changes in local moisture and associated biotic communities, especially during the first few hundred years of the early Holocene and the onset of middle Holocene desertification.

Scott Cummings, Linda (PaleoResearch Institute)

How Did I Arrive Here, and What’s Next?

Symposium (Friday 1:30 PM-4:45 PM, Deer Valley)

Way back when – in 1972, I had a vision: to provide a picture of the past environment, of cooking, and of a way of life. It seemed simple (not easy), and relative to today’s world, it was simple. It was a beginning. When I started working in archaeobotany the field was in its infancy and archaeology was a man’s world. As a pioneer I contributed my vision, as did others. Together, we influenced the field of archaeobotany. With each creative step I felt like I was ascending a mountain. With each scientific or methodological discovery I felt like I had reached a summit, only to look around and see the next challenge – the way continued up and up. We grow in expertise in our specialties, and we grow in the ability to visualize what we had not thought could exist. Telling stories about the past with humor and reflection provides insight into how we came be “here” and possibly sheds light on what’s next.
Morphometric analysis of phytoliths recovered from maize cobs indicates diversity in the Virgin Anasazi and Fremont maize stock. Using cell shape data (morphometrics) obtained on phytoliths recovered from maize cobs from two Virgin Anasazi areas and two Fremont areas (NE Utah and NW Colorado) as a proxy for genetic relationship, a picture emerges of diversity rather than coherence in maize type. First, statistical comparison (PCA) of reference material is examined to provide an example of the statistical method. Archaeological data are then mapped onto the reference pattern to illustrate diversity. Finally, archaeological cobs from Canyonlands National Park are compared with the data sets to illustrate similarity in subsets of the data. Fremont cobs exhibit sufficient variability to create a wide and long cluster in the PCA plot, suggesting significant variability. Other populations of cobs present tighter groupings raising (rather than answering) questions about the genetic origin of Fremont maize.

Seal, Whitney (Utah Division of State History Antiquities Section)

Cultural Appropriation of Utah’s Monuments & Markers

Poster Session (Friday 9:00 AM-11:00 AM, Bryce Ballroom)

Using the information from State History on Monuments and Markers from around the state, analysis has been done on the connection with the date on the monument/marker and what the monument/marker is saying. By doing this, we can depict whether it’s culturally appropriate and if things probably should be changed on said monument/marker.

Searcy, Michael (Brigham Young University)

see Yoder, David

Shaver, Noelle (Mountain Home Air Force Base)

see King, Jerome

Sheehan, Michael (BLM, Salt Lake Field Office)

see Merritt, Christopher

Shillito, Lisa-Marie (Newcastle University)

see Blong, John
Harvard archaeologist Noel Morss described ancient irrigation systems in central Utah during fieldwork in 1928 that first defined the Fremont culture. Fieldwork beginning in 2010 identifies an irrigation system 4.5 miles long bringing water from Pleasant Creek at 8,500’ to a 90 acre field at 7,100’ on the east slopes of Boulder Mountain, overlooking Capitol Reef National Park. Numerous Fremont sites are recorded in the area. Fieldwork includes excavations exposing subsurface canals, experimental archaeology on the costs of system construction and maintenance, magnetometer and GPR imaging, and dating of ditch sediments using optically stimulated luminescence (OSL). Dated irrigation events occur between A.D. 1500–1700, and in the early 20th century, but there is geomorphic evidence that these events occurred in an existing system of unknown antiquity. Questions raised and some answers for discussion include: Does the system originate with the Fremont? Possibly. Do we extend the date of the Fremont just based on irrigation? No. Is Fremont still Fremont in A.D. 1500, and should we expect “Fremont” sites in the area (e.g. ceramics, pithouses) to have the same dates as late irrigation? Not necessarily. Is irrigation an unglamorous signal of cultural continuity? Maybe. Are the historic tribes of the Colorado Plateau culturally and linguistically diverse, but rooted in a common ancient history? Let’s consider an alternative paradigm to that reflected in the site form check box “cultural affiliation”.

Scarce and unpredictable growing season rainfall severely constrains the success of farming without irrigation. That is true today and was true in the past. Irrigation, especially from permanent water sources, allows farmers to control the frequency and intensity with which supplemental water is applied to their crops. That water is often not free, however, because the farmers had to construct diversion dams, ditches and furrows, and they had to maintain and operate the irrigation system during the growing season. Over four summers, we have investigated the costs of simple surface irrigation and its influence on the maize crop yield on the Range Creek Field Station in central Utah. The Fremont who occupied Range Creek Canyon between about AD 900-1200 were heavily reliant on farming based on the ubiquity of food storage facilities, maize cobs, presence of maize starch on ground stone implements, and the discovery of buried maize farms using stable isotope analysis. We review the salient aspects of these actualistic experiments and discuss their strengths and challenges. We also investigate the importance of documenting the costs of irrigation. In combination with the benefits provided by the supplemental water, it is possible to calculate the optimal irrigation schedule which determines the optimal
crop yield. When irrigation has a cost, the optimal amount of irrigation water is less than that required to produce the maximum yield per unit of land. The greater the cost, the greater difference between optimal and maximum yields. The implications of this insight are examined.

Simons, Ellyse (Natural History Museum of Utah)

see Boomgarden, Shannon

Simons, Ellyse (Natural History Museum of Utah)

see Haisley, Cody

Smith, Carrie (USDA Forest Service, Tahoe National Forest)

see Harvey, Amanda

Smith, Geoffrey (University of Nevada, Reno)

Lessons from The Big Empty: A Near-Decade of Learning from Dennis Jenkins in the Oregon Outback

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

Since 2010, the University of Nevada, Reno’s (UNR) Great Basin Paleoindian Research Unit has conducted archaeological fieldwork in eastern Oregon – a region dubbed The Big Empty by early ranchers. Over the years UNR and University of Oregon crews have crossed paths several times in The Big Empty, first as colleagues and more recently as friends. During each encounter, I have learned valuable professional and personal lessons from Dennis Jenkins, who has spent three decades teaching students about northern Great Basin prehistory and paleoecology. In this presentation, I highlight several such meetings and how each one has shaped my own approach to conducting Paleoindian archaeology in the Oregon Outback, where the sagebrush are short, the tales are tall, and the memories are as clear as the morning sky.

Smith, Geoffrey (University of Nevada, Reno)

see George, Nicole

Smith, Geoffrey (University of Nevada, Reno)

see Hockett, Bryan

Smith, Geoffrey (University of Nevada, Reno)

see Reaux, Derek

Smith, Geoffrey (University of Nevada, Reno)
“If you walk a mile, you might find a projectile”: Dr. Dennis Jenkins and his contribution to research methods and values in the Northern Great Basin and beyond

Symposium (Thursday 1:00 PM-5:00 PM, Arches Ballroom)

Robust methods and clear research values are the foundation of academic and professional contributions to archaeology. For many archaeologists, these key concepts are not taught in the classroom, but through field school experiences. In honor of Dr. Dennis Jenkins and his 30 years of teaching and mentoring field school students, this paper recounts Dr. Jenkins’ impacts on archaeological methodology and research values in Northern Great Basin archaeology and beyond. Dr. Jenkins’ lessons in the field highlight the importance of innovative methods, professional collaborations and data sharing, and research values/work ethic. Testimonials by former students explain how Dennis’ teaching and leadership have influenced their own sense of professionalism and scholarship in archaeological projects in both North America and Europe.

Stelter, Kristina (SWCA Environmental Consultants)

Equine Archaeology: Using Horses to Understand Society

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

For the last 10,000 years horses have been a staple to human society across the globe. Utilizing equine remains and associated artifacts in order to better understand the culture and society that they are found in has added a specific data set that has not been gained elsewhere, and has the potential to change current conclusions about specific sites and cultures. Using equine osteological remains, equine associated artifacts, and historical evidence, this poster will showcase how understanding horses can help archaeologists understand human culture within the Great Basin to new depths.

Sturtz, Sara N. (University of Nevada, Reno)
Smith, Geoffrey (University of Nevada, Reno)
George, Nicole (University of Nevada, Reno)
Reaux, Derek (University of Nevada, Reno)
Rosencrance, Richard (Department of Anthropology, University of Nevada, Reno)

Revisiting Leonard Rockshelter to Evaluate a 70-Year-Old Claim of a Clovis-Era Occupation

General Session (Thursday 1:00 PM-2:30 PM, Alta-Brighton)

Leonard Rockshelter is a large archaeological site located in Pershing County Nevada. It was discovered in 1938 and tested by Robert Heizer in 1950. Heizer reported more than 2 m of stratified deposits from which he recovered a modest perishable and lithic artifact assemblage. At the base of the deepest stratum, which is comprised primarily of bat guano, Heizer found several obsidian flakes associated with guano radiocarbon dated to 11,200 14C B.P. That discovery suggests that Leonard Rockshelter may contain a Clovis-era occupation, which
would be significant in a region where stratified Late Pleistocene sites are rare. In 2018, the University of Nevada, Reno’s Great Basin Paleoindian Research Unit returned to the site to evaluate Heizer’s claim. In this paper, we present the preliminary results of our efforts a focus on understanding the age of the deposits and if Paleoindians visited the site.

Tasa, Guy (Washington State Department of Archaeology & Historic Preservation)

see Endzweig, Pamela

Teeman, Diane (Director, Culture & Heritage Department, Burns Paiute Tribe)

Roundtable Participant

Roundtable (Friday 9:00 AM-12:00 PM, Powder Mountain-Solitude)

Thomas, David Hurst (American Museum of Natural History)

A Shoshonean Prayerstone Hypothesis: Ritual Cartography of Great Basin Incised Stones

Symposium (Friday 9:30 AM-11:45 AM, Arches Ballroom)

The prayerstone hypothesis, grounded in Southern Paiute oral history, holds that selected incised stone artifacts were deliberately emplaced where spiritual power (puha) was known to reside, votive offerings accompanying prayers for personal power and expressing thanks for prayers answered. Proposing significant and long-term linkages between Great Basin incised stones and overarching Shoshonean cosmology, this paper explores the prayerstone hypothesis in the context of ~3,500 incised stones documented from the Intermountain West, an assemblage spanning seven states and seven millennia. Employing object itinerary perspectives, it becomes possible to develop ritualized cartographies capable of matching oral Shoshonean traditions with specific geographic indicators. Preliminary results indicate that many (but not all) such incised stones are consistent with the ritualized emplacement of prayerstones. Multiple constellations of prayerstone practice operated across the Great Basin for more than 5,000 years and carried forward, without perceptible break, among several (but not all) Numic-speaking populations of the ethnohistoric interval. If true, the prayerstone hypothesis suggests dramatically more complex cultural trajectories than implied by Lamb’s (1958) widely-accepted model of a single, late, and simultaneous Numic spread across the Great Basin.

Thomas, David Hurst (American Museum of Natural History)

see Hughes, Richard

Thomas, Nathan (Bureau of Land Management - Utah)

see Barg, Diana

Thomas, Scott (Bureau of Land Management)
Archaeology has emerged as a field with equal or greater numbers of women participants compared to men. It is also a discipline with a heavy contingent of extra-academic professionals; Today, 90% of archaeologists work in a growing industry that accounts for an estimated one billion dollars of annual spending. Despite these high levels of participation by these groups, regional and national demonstrate that there remains a persistent gap in peer reviewed publication rates. In this paper we review these historical patterns with a focus on the Great Basin. We posit that this “peer review gap” is influenced by variation in the costs (largely time investment) and benefits of publication for people working in different professional roles (e.g., agency professionals, private/cultural resource management firm personnel, tenure-track faculty, adjunct faculty, etc.). We also argue that these cost and benefit variations may ultimately influence the decisions of people of all genders and backgrounds, but, because of the current structure of our discipline—including the fact that women and minorities lag in positions where costly peer-reviewed publication is a rewarded and supported activity—overwhelmingly affect these groups. Though a challenge, given the current structure of our discipline it is important to recognize and track non-academic model venues (technical reports, non-refereed publications, etc.) where the gap may be reduced. Our results suggest that non-refereed journals may provide an important means of bridging the peer review gap and give voice to individuals from diverse backgrounds and perspectives.

Increases in the proportion of younger age classes among archaeofaunas are often thought to reflect greater human hunting pressure. One key linkage is an increase in prey mortality, which has been argued to reduce survivorship to older age classes and produce an influx of neonates via increasing population growth rates. Here I combine modern wildlife data and matrix projection models to examine the effects of increased mortality on age structure in artiodactyl populations. The proportion of juveniles changes little under an array of mortality schedules and the observed differences pale when compared to interannual variation in modern populations.
These results undercut the proposition that mortality plays a significant role in shaping the age structure of archaeofaunas.

Valentine, David (Idaho Power Company)

Just Whose Dam is It Anyway?

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)

The Civilian Conservation Corps (CCC) is reported to have built 91 dams in the state of Idaho during the period of 1933 to 1942. Many of these dams are believed to be rockfill dams, as the CCC is noted for their excellent rock work on other projects. As such, many archaeologists are inclined to record all rockfill dams as having been built by the CCC. The rockfill dam, however, was a popular dam style in the West, dating back to the 1870s. Farmers and ranchers in Idaho started building rockfill dams for irrigation and stock water in the late 1880s, if not earlier. Did the CCC exclusively build rockfill dams, or were other styles and materials employed in dam construction? Is it possible to differentiate between rockfill dams built by others for early irrigation and stock watering projects, and later ones completed by the CCC? How often must historic records be employed in determining who built a dam, and what records are the most useful? This paper will explore potential answers to some of these questions.

Vernon, Kenneth (University of Utah Archaeological Center)
Young, D. Craig (Far Western Anthropological Research Group)
Zeanah, David (California State University, Sacramento)
Elston, Robert (University of Nevada, Reno)
Coddin, Brian (University of Utah)

Prearchaic Land Use in Grass Valley, Nevada: this time with Bayes

Poster Symposium (Friday 2:00 PM-4:00 PM, Bryce Ballroom)

Using Prearchaic (PA) sites in Grass Valley, Nevada, this project investigates (i) environmental factors driving variation in PA settlement and (ii) geomorphological factors driving variation in PA surface visibility. While this project promises to shed new light on lingering questions, its fine-grained regional focus raises two important challenges: a small sample and an increased potential for autocorrelation in predictor variables. To address these challenges, we build on previous research to evaluate predictor variable contributions using Ideal Free Distribution and a Bayesian approach to species distribution modeling in ecology.

Vernon, Kenneth (University of Utah Archaeological Center)

see Yaworsky, Peter

Walkling, Lauren (University of Nevada, Reno)

Persistence among the Northern Paiute: Negotiation Strategies in Aurora, Nevada

General Session (Saturday 9:00 AM-12:00 PM, Alta-Brighton)
Negotiation and agency are crucial topics of discussion, especially in areas of colonial and cultural entanglement in relation to indigenous groups. Studies of agency explore the changes, or lack thereof, in material culture use and expression in response to colonial intrusion and cultural entanglement, usually in relation to resistance and dominance frameworks. Agency studies, based on the dominance and resistance dichotomy, uses material and documentary evidence on varying scales of analysis, such as group and individual scales, and discusses how social aspects including gender, race, and socioeconomic status affect agency practices. One alternative framework to this dichotomy is that of persistence, a framework that focuses on how identity and cultural practices were modified or preserved as they were passed on (Panich 2013: 107; Silliman 2009: 212), and its two off-shoots survivance and residence. Using the definition of persistence as discussed by Lee Panich (2013), archaeological evidence surveyed from a group of historic Paiute sites located outside of the mining town, Aurora, Nevada, and historical documentation will be used to track potential persistence strategies. The focus will be on persistence tactics taken up by the Aurora Paiute population during the late nineteenth century, during the most prosperous points of Aurora’s heyday.

Walter, Brandon (Brigham Young University)

An Examination of the Non-Obsidian Stone Tools from Wolf Village

Symposium (Friday 9:00 AM-11:45 AM, Canyons)

The Fremont of Wolf Village used many different material types in the production of stone tools. Finished tools, such as projectile points and bifaces, tend to be made of a wide variety of fine-grained chert. Rougher tools, such as hammerstones and choppers, tend to be made of quartzite and coarse-grained chert. In this examination of non-obsidian stone tools, cores, projectile points, hammerstones, choppers, and lithic debitage from Wolf Village were analyzed to determine material type; frequencies of materials were then compared to determine the relationship between material and tool type. It is hypothesized that the Fremont of Wolf Village used coarse-grained materials that were probably of local origin to create rough tools while using potential non-local sources of fine-grained materials to create finished tools.

Webb, Dallin (Logan Simpson, Inc.)

Cooperative Foraging Strategies and Technological Investment in the Western Great Basin: an Investigation of Archaeological Remains from the Winnemucca Lake Caves

Symposium (Thursday 1:00 PM-3:15 PM, Deer Valley)

This research investigates evidence for the intensity and development of cooperative foraging strategies and investment in cordage and lithic technologies through time in the western Great Basin. It specifically addresses (1) when the region’s inhabitants invested in cordage technology used to create cooperation-oriented nets; (2) when the region’s inhabitants invested in flaked-stone technology used for individual, active-search hunting; and (3) when nets occur in archaeological deposits. I therefore develop a methodology geared toward assessing diachronic changes in frequency and type of different cordage and flaked-stone technologies in the Winnemucca Lake Caves over the course of the Holocene (10,300–150 cal B.P.). The results of this study indicate that investments in cordage, netting, and flaked-stone technologies were greater during the Middle Archaic than during any earlier or later time period. Investment in these technologies increased during the Middle Archaic alongside growing human populations and ameliorating environmental conditions, suggesting that
these factors may have played a role in the development of increased cooperation and technological investment during the western Great Basin’s Middle Archaic Period.

Wegmann, Karl (North Carolina State University)

see Holcomb, Justin

Wells, Helen (California State University, Los Angeles)
Saldaña, Melanie (California State University, Los Angeles)
Morales, Anthony (California State University, Los Angeles)

New Data from the Stick Site (CA-SBR-14), a Rock Shelter on the South Range, Naval Air Weapons Center (NAWS), China Lake, California

Symposium (Saturday 9:00 AM-10:45 AM, Snowbird)

Between 2007 and 2016, CalStateLA investigated rock shelters and other sites on the South Range of NAWS, China Lake, as part of a landscape-level research project. Specialized studies of recovered artifacts are continuing, with a focus on materials from the Stick Site (CA-SBR-14), a rock shelter that was originally recorded by Agnes Bierman and Al Mohr in the 1940s and test-excavated by field class students in 2015 and 2016. Recent data from ceramic analyses, plant residue identification, and reclassification of shell beads provide new perspectives on use of the site during the Late Prehistoric period.

Wetstone, Tanner (Winnemucca BLM)

see Ataman, Kathryn

Wolfe, Allison (Department of Anthropology, University of Utah)
Broughton, Jack (Department of Anthropology, University of Utah)

The Avifauna of Lake Bonneville

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

Although recent research of the faunal and floral remains of the Bonneville basin has increased our knowledge of biotic change across the final regression of Lake Bonneville, our knowledge of avifaunal change across this period remains poorly understood. This study focuses on the bird remains from the lower strata (especially Stratum I) of Homestead Cave, the only site in the Bonneville basin that provides a substantial, well-dated avifaunal record dating to the terminal Pleistocene and early Holocene. Analysis of the entire Stratum I avifauna produced a sample of 4,613 identified specimens, dominated by aquatic taxa including ducks, grebes, gulls, and shorebirds. Terrestrial taxa are also well-represented, most notably by Greater Sage-grouse (Centrocercus urophasianus). We examine change in the taxonomic composition of the Bonneville basin aquatic avifauna as anticipated from previous research and find significant declines from 11.2 to 7.1 ka in birds that favor deeper lacustrine habitats, such as diving ducks and piscivorous grebes. Our analysis captures the transition from the Gilbert level deep-water phase to the saline and shallow-water context that has characterized Great Salt Lake for
much of the Holocene. We also document a dramatic loss of Greater Sage-grouse across this period. This ~4,000-year record of avifaunal change may prove useful in modern conservation efforts, most notably for that of Greater Sage-grouse, as xeric conditions are forecasted to increase in the future.

Wriston, Teresa (Desert Research Institute)

**Revisiting the 2000-2002 excavations at the Weed Lake Ditch Site, Harney County, Oregon**

As one of the few open sites that has revealed a significant Western Stemmed buried assemblage, the Weed Lake Ditch site remains important to our understanding of Terminal Pleistocene to early Holocene landscape use. Excavations between 2000 and 2002 revealed seven Western Stemmed points, one crescent, one bone bead preform, 47 lithic tools, 16,242 pieces of lithic debitage, and 14,504 bone fragments from the 83 sq. meters of sediments. Backhoe trenching and documentation of the large ditch excavated through the site revealed that the primary cultural stratum was medium sand and bioturbated gravels laid down on an active shoreline. These finds are summarized and discussed with a fresh perspective on their relative importance in the region in order to set the stage for new work at the site.

Wriston, Teresa (Desert Research Institute)
Adams, Kenneth (Desert Research Institute)

**Preliminary Results of Terminal Pleistocene to Early Holocene Archaeological and Lake History Research in Coal Valley, Basin and Range National Monument, Lincoln County, Nevada**

Little Paleoarchaic archaeological research has been conducted in Coal Valley despite early identification of a fluted point, its distinct pluvial lake beach ridges, and promising finds by Beck and Jones in 2007. The Desert Research Institute has been exploring this basin over the past two years, mapping its landforms, dating its lake shorelines, and conducting Class III archaeological surveys to understand the prehistoric distribution of both resources and people through time. Results show a relatively strong Terminal Pleistocene/Early Holocene signature represented by fluted points, Western Stemmed projectile point varieties, and Crescents scattered in a telling distribution in relation to the ancient lakeshores.

Wurster, Bethany (Utah State University)
Finley, Judson (Utah State University)

**A Geochemical Signature of Tosawihi Chert Applied to the Southeastern Oregon Shoshone Complex**

The Tosawihi Quarries is an extensive source of white chert toolstone located outside of Battle Mountain, Nevada. Situated in an obsidian-poor region, the Tosawihi Quarries is a significant toolstone resource that is known to also fulfill religious and socio-cultural purposes for modern Shoshone bands. The distribution of Tosawihi chert holds potential to inform upon lithic toolkit design, mobility strategies, exchange patterns, and
Numic culture history. Chert sourcing methodologies remain problematic and often rely on physical characteristics to discriminate between cherts. Previous studies have used the ultra-violet fluorescence properties of Tosawehi chert to identify it in the archaeological record. Other white cherts, however, share similar ultra-violet reflections. This study uses the handheld Bruker Tracer Si laboratory ED-XRF instrument to determine a unique geochemical signature for Tosawehi chert. First, we compare the photon spectra and parts per million readings from the Tosawehi chert source standard collection to two other Great Basin white chert collections. We then apply the Tosawehi signature to the archaeological record by analyzing white chert artifacts from the Lost Dune sites, a Shoshone complex located in Hamey County, Oregon. Our results indicate that our methodology can confidently characterize and identify Tosawehi chert using ED-XRF.

Xochime, Citlalin (University of Nevada, Reno)

see Brewster, Melvin

Yacubic, Matt (United States Air Force)

Trail Tails with UAV Technology

General Session (Thursday 1:15 PM-3:45 PM, Canyons)

Cultural resource management on federal lands presents several unique challenges. Specifically, agencies tasked with CRM responsibilities must balance the need to conduct inventories across large tracks of land using ever-shrinking budgets. Recent fieldwork completed along segments of the California Emigrant Trail in northern Nevada used a combination of Unmanned Aerial Vehicle (UAV) and pedestrian surveys to examine trail segments. Preliminary results of this study suggest UAV technology can be an economic method for identifying archaeological features for more in-depth analysis.

Yaworsky, Peter (University of Utah)
Vernon, Kenneth (University of Utah Archaeological Center)
Codding, Brian (University of Utah)

Archaeological Potential of the Grand Staircase-Escalante National Monument

Poster Symposium (Thursday 5:00 PM-7:00 PM, Canyons Lobby)

Executive proclamation 9682 reduces the size of the Grand Staircase-Escalante National Monument (GSENM), removing protections for at least 2,000 known archaeological sites and an unknown number of undiscovered cultural properties. Because only 10% of the GSENM’s 1.9 million acres has been inventoried by archaeologists, fully evaluating the potential consequences of these boundary reductions in the remaining 90%, or 1.71 million acres, requires the use of predictive modeling. Here we report the major findings of a comprehensive predictive modeling program undertaken by the University of Utah Archaeological Center. Methodological and analytical details are available from the authors or in a report issued to the Bureau of Land Management.

Yaworsky, Peter (University of Utah)
see Cole, Kasey

Yoder, David (Weber State University)
Lambert, Spencer (Southern Methodist University)
Searcy, Michael (Brigham Young University)

Strontium Isotope Analysis in the Eastern Great Basin: Potential challenges, rewards, and a Fremont case study.

Symposium (Friday 9:00 AM-11:45 AM, Canyons)

Over the last 20 years strontium (Sr) isotope analysis has become a powerful tool in the study of prehistoric human behavior; especially for patterns of movement, migration, and trade. While used in many other parts of the world to determine if an individual or animal was local or non-local to the area in which they were found, this technique has been under utilized in the Great Basin. In this presentation we will outline the regionally specific challenges researchers face in using Sr analysis in the eastern Great Basin; the potential insights we may gain in understanding prehistoric culture and behavior; and present a case study of the use of Sr analysis in the Parowan Valley of Utah.

Yohe, Robert (CSU Bakersfield)

see Jones, Kara

Yohe, Robert (CSU Bakersfield)

see Rogers, Alexander

Young, D. Craig (Far Western Anthropological Research Group)
Bullard, Thomas F. (Desert Research Institute)

Under the Dust of Time: archaeological implications of the desert dust geomorphic cycle in Lincoln County, Nevada

Symposium (Friday 1:30 PM-5:00 PM, Alta-Brighton)

Dust transport, deposition, and recycling are important geomorphic processes and landscape-scale phenomena recognized throughout the world. The process, timing, magnitude, and spatial distribution of dust (or desert loess) are important to archaeology because century- to millennial-scale dust accumulation and long-term (ka) recycling buries the landscape and may severely impact recognition of cultural resources and interpretations of large-scale pedestrian survey data. Our on-going investigations supported by the Lincoln County Archaeological Initiative document the timing and physical setting of the dust cycle in eastern Nevada, with emphasis on the impact of this geomorphic system on archaeological site preservation and visibility. Desert loess composed of very fine sand, silt, and clay (concentrated in the 20-50 μ size range) cycles through a complex geomorphic system of processes that transports dust from mountain slopes to alluvial systems to playas in the valley bottoms. Our preliminary model of the regional Desert Dust Geomorphic Cycle provides insight into dust
Investigating Great Basin Prehistory in Context of an HBE Perspective of Divisions of Labor

Plenary Session 1 (Thursday 8:00 AM-11:30 AM, Canyons)

Studies of contemporary foragers, firmly grounded within HBE, reveal critical dimensions by which gendered divisions of labor vary among hunter-gatherers. Incorporating a theoretical understanding drawn from this body of work into interpretive frameworks reveals insight on prehistoric subsistence changes in the Great Basin. Here, I use three cross-cultural databases to analyze how gendered organization of labor varies according to subsistence and mobility variability. Men and women’s foraging efforts converge on high energy aquatic resources that may be reliably procured, but women often support large game hunting by performing supportive technological processing, fabrication, and maintenance activities. This reflects labor invested to reduce overall foraging costs (handling, pursuit travel, and transport) in highly mobile settlement systems, where large game may be reliable procured. However, the key determinants of whether women support hunting by men, or hunt and gather on their own, appear to be the availability of alternative reliable aquatic and gathered resources, rather than that of large terrestrial game. In contrast, both technological and foraging activities strongly diverge by gender in subsistence strategies heavily reliant on gathering. An inverse relationship between the importance of gathered foods and hunting support activities, suggests strong opportunity conflicts on women’s labor, particularly when diets are broad, appearing to reflect a switch in investment by women in technologies intended to reduce the handling cost of low return plant resources. These findings have direct implications for understanding well-documented shifts in mobility, technology and subsistence emphasis in Great Basin prehistory.
Zeanah, David (California State University, Sacramento)

see Magargal, Kate

Zeanah, David (California State University, Sacramento)

see Vernon, Kenneth

Zingerella, Patrick (USDA Forest Service, Tahoe National Forest)

see Harvey, Amanda