



UNIVERSITY OF WYOMING

THE FRISON INSTITUTE OF ARCHAEOLOGY AND ANTHROPOLOGY

BULLETIN 28
FALL, 2015

From the Director, Todd Surovell

Because you understand the importance of archaeological research, I know you support the Frison Institute's work. In today's climate, securing research funds is challenging. Consider these facts: (1) Archaeological research has been traditionally funded by grants from government agencies like the National Science Foundation or private entities like the National Geographic Society. (2) Over the last decade, our federal investment in general scientific research has barely kept pace with inflation. (3) Over the same time period, there has been no real increase in federal funding for archaeological research, but the field has grown by 30 percent. (4) Several efforts to reduce National Science Foundation social science funding have been made in the U.S. Congress, and threats to cut funding continue to persist. Enduring more cuts means fewer projects and poorer quality research.

In the state of Wyoming, the short-term outlook for university funding is not good. With low energy prices, the Governor's office

is projecting a budgetary shortfall, which means fewer state funds coming to the university, something that directly impacts all of us at U.W. To ensure that Wyoming archaeology has a strong enduring future, it is clear that we cannot rely on traditional sources of funding as much as we have in the past. The purpose of the Frison Institute endowment is to fill a gaping and growing hole in archaeological funding. Our endowment is largely immune to the vagaries of government budgeting and thanks to dozens of donors like you, for nearly two decades, we have endowed just under \$600,000. Our endowment generates more than \$20,000 annually to support archaeology at U.W. The administrative costs of the Institute are covered by funds already in place. This means that every penny that people donate to our endowment supports archaeological research; no donations are used to cover administrative costs like salaries or travel. For all of these reasons, I hope you will consider supporting the Frison Institute.

THE LA PRELE MAMMOTH SITE

When Douglas residents William Hinrichs and Mike Earnst found mammoth bones poking out from the bank of La Prele Creek in 1986, they contacted **George Frison** at the University of Wyoming. In the spring of 1987, George tested the find locality. The site, now known as the La Prele Mammoth site, produced about 80 skeletal elements of a young Columbian mammoth, a flake tool, and a dozen tiny flakes. Although the site showed promise to be Wyoming's second mammoth kill site, a disagreement with the landowner shut down the excavation.

In summer of 2014 and again in 2015, a new landowner, Jack Amen, welcomed **Todd Surovell** and **Bob Kelly** to return to the site with the U.W. Archaeological Field School. In the 27 years that had passed since Frison's initial test, the site remained largely intact, except that erosion had removed a meter of the bank. In our renewed excavations near the mammoth, we found a few additional large bones, several hundred small bone fragments, and more than 20 small flakes. In a second area 12 meters south of the mammoth, we found a chopper, several flake tools, more than 200 flakes, a large stain of red ocher, and a fragment of a bone needle. The needle (photo on p. 5) was a surprise, and it is one of the oldest needles in the New World. We have yet to find a projectile point, but we are increasingly confident that the site is a mammoth kill site. Next summer, we will be returning to the site with the field school.



U.W. Field School students Lara Bluhm and Chandini Dahlberg water screen at the La Prele Mammoth site.

Institute Funded Research

Student Research

Seven students received Institute funding, five of whom were from U.W., **Josh Boyd** (MA), **Brigid Grund** (PhD), **Connor Johnen** (MA), **Spencer Pelton** (PhD), and **Rachael Shimek** (PhD). **Katherine Mulliken** (MA student, University of Alaska) and **John Blong** (PhD student, Texas A&M) received funding in support of thesis research from the Patrick Orion Mullen Fund.

Skeletal Pathology in Dogs

Rachael Shimek, a doctoral student at U.W., is looking at the effects of aging, disease, and trauma on the skeletons of captive and wild canids (dogs, wolves, and coyotes). She is interested in how canid populations interacted with humans and hopes to learn about the use, treatment, and care of prehistoric dogs. So far, she has found that dogs have more skeletal changes associated with aging, while wolves and coyotes show more evidence of skeletal disease and trauma. With support from the Frison Institute, Rachael will be traveling to the University of Alberta this winter to continue to collect skeletal data.



Severe arthritis in the elbow joints of a modern dog

WILLIAM TYRRELL FUND

Graduate students **Spencer Pelton** and **Joshua Boyd** received a grant from the Tyrrell Fund for subsurface testing at Duck Creek, a multi-component site spanning Late Paleoindian through historic times in northern Albany County. Their investigations, which included 46 auger tests and three test units, established the presence of stratified archaeological deposits extending at least 1.5 meters below ground surface. Buried materials recovered include 500 pieces of chipped stone debitage, two stone tools, animal bone, and early historic metal artifacts including horse shoe nails and a historic can. Significantly, they located a Late Paleoindian Pryor-stemmed point toward the bottom of the sequence, suggesting the deposits span much of the Holocene. Pending radiocarbon dates will further refine the site's chronology.



Spencer Pelton and Hallie Meeker screening at the Duck Creek site.

PATRICK ORION MULLEN FUND

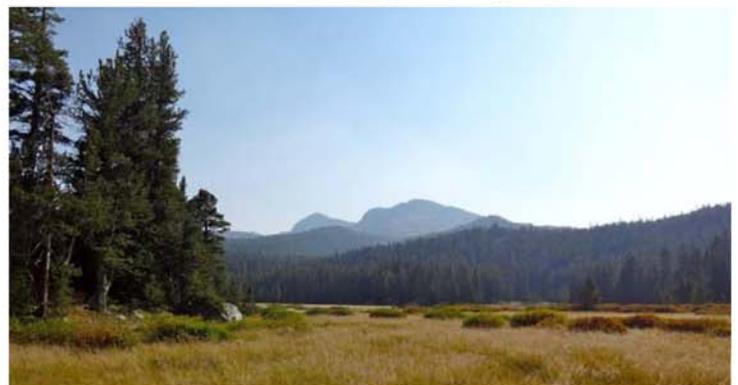


Three tephra in a stratigraphic profile from the middle Susitna River Valley, Alaska. (photo from UA Museum of the North).

Katherine Mulliken, an M.A. student at the University of Alaska Fairbanks, received a grant from the Mullen Fund to analyze tephra (volcanic ash) samples from archaeological sites in the middle Susitna River Valley in southcentral Alaska. She is trying to correlate tephra from each of three distinct ash layers to samples from the source, Hayes Volcano, to understand how many eruptions are present within each layer. This research has implications for understanding the effects of tephra deposition on humans and the landscape. In addition, her work contributes new dates that help to refine the ages of both the tephra layers and cultural components in the area. Katherine is analyzing her data and writing her thesis, after which she plans to publish her research.

WAPA RESEARCH FUND

In 1969, two undergraduate students affiliated with Colorado State University recorded 20 sites high in the Southern Wind River Range of Wyoming. M.A. student **Connor Corcoran Johnen** received a grant from the Institute's WAPA Research Fund to relocate and rerecord these previously identified sites. This work was a collaborative effort with **Dr. Richard Adams** (Frison Institute board member). In total 14 of the previously discovered and 13 new sites were recorded. As part of his thesis research, Connor used this trip as an opportunity to compare spatial patterns of high-altitude residential site location to those predicted by a model published by **Matthew Stirn**, another Institute grant recipient.



Alpine meadow in the Southern Wind River Range.

FEATURED PROJECT: THE TETON ARCHAEOLOGICAL PROJECT



Surveying the High Country

Rebecca Sgouros surveys an alpine lake in the northern Tetons

By Matt Stirn & Rebecca Sgouros

This summer, with generous support from Ed and Shirley Cheraamy through the Frison Institute's Alpine Archaeology Fund and from the Caribou-Targhee National Forest, the Teton Archaeological Project (TAP) continued its second season of high-elevation archaeology in the Teton Range. The project is directed by Matthew Stirn and Rebecca Sgouros of the Jackson Hole Historical Society and Museum and has succeeded with the help of student volunteers from U.W., the University of Montana, Montana State, Kennesaw State, the University of Nevada – Reno, and the University of California – Berkeley.

The focuses of the TAP are surveying and recording new terrestrial and ice patch archaeological sites, investigating the economics of prehistoric alpine groups, and comparing past human adaptations in the Teton Range to other montane regions.

We have recorded over 30 sites ranging in age from the Cody Complex (ca. 9,500 BP) to Late Prehistoric (ca. 300 BP). We have recorded two ice patch finds including a 3,000 year old

Whitebark Pine artifact and a 6,000 year old piece of Douglas Fir. Other highlights include the first high elevation ceramic site in the Tetons, ten soapstone bowls and fragments, and the completion of a lipid residue study which identified prehistoric cuisine including trout (the first evidence of high elevation fishing), marmot, elk, bison, biscuitroot, and whitebark pine. At the end of this past season we extracted a sediment core from an alpine lake in the northern Tetons, which with the help of Dr. Peter Wigand (University of Nevada Reno), will be analyzed for pollen, diatoms, fire history, and isotopes. While radiocarbon dates are pending, volcanic ash in the core suggests we will have at least 8,000 years of environmental history preserved in the core.

Overall, the Tetons have offered a fascinating and exciting place to work. Be it trekking into remote basins with a string of horses, black bears wandering through camp, or a whiteout blizzard in the middle of August, we never know what adventure will come next. Archaeologically, less than 20% of the entire range has been investigated and we look forward to returning over the years to come.



A 9,500 year old Alberta style projectile point that was discovered far above treeline in the central Tetons.



The Teton Archaeological Project team recording a late prehistoric site in the northern Tetons.



Matt Stirn and Megan Jones record a prehistoric site in the northern Tetons.



Paddling the coring rig to the center of the lake in preparation for extracting the pollen core.



Matt Stirn on the horizon checking out unexplored country.



Rebecca Sgouros packages a large soapstone bowl preform found at 10,000 feet on an exposed alpine ridge.

Dating Sites with Microbes

There are millions to billions of bacteria, fungi, and protozoa within every gram of soil. Despite the ubiquity of microorganisms, soil microbiology and the study of archaeological matrix are rarely brought together in cross-disciplinary research.



Brigid Grund removing soil samples from the La Prele Mammoth Site in eastern Wyoming (Photo by Anne Duquennois)

Brigid Grund is bringing these fields together to develop a new relative dating technique based on the hypothesis that microbial abundance exponentially decreases with soil age. She is comparing microbial density and community structure to radiocarbon dates obtained from two distinct depositional sequences in Wyoming: Hell Gap and the La Prele Mammoth Site. If it works, this method will provide archaeologists with an imprecise but cost-effective procedure for dating buried soils in the Northwestern Plains. Since microorganisms pervade all Earth's soils, calibrating to local environmental conditions would allow this technique to fill chronological gaps at any site, anywhere, throughout all of antiquity.

Fall Lecture

The 17th Annual Frison Institute lecture was given by **Dr. Stephen Lekson** of the University of Colorado, Boulder. Dr. Lekson's lecture was titled "A Millennium on the Meridian: One Thousand Years of Political and Ritual Power in the Ancient Southwest." Dr. Lekson argued that the political capital of the ancient southwest moved north and south along a single line of longitude, what he has deemed the "Chaco Meridian". The rise and collapse of the largest and most important sites in the region can be traced through time across this line. In stark contrast to traditional views of southwestern prehistory where pueblos were organized around a largely egalitarian social structure, Dr. Lekson argues that until recently, southwestern societies were vertically differentiated into elites and commoners. An updated version of his book on the subject, *The Chaco Meridian*, is now available from Alta Mira Press.



Dr. Stephen Lekson at a Chaco Canyon great house.

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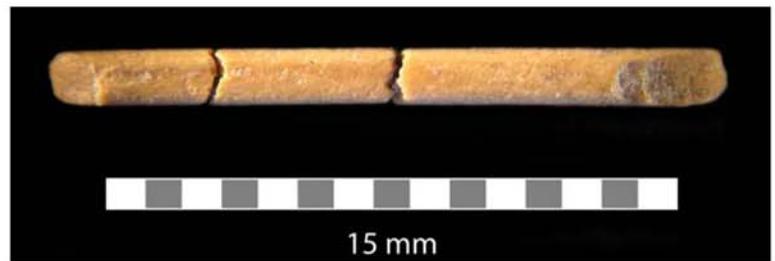
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15 mm

A bone needle fragment recovered from the La Prele Mammoth site during the 2015 field season. This is one of the oldest bone needles recovered from North America, and it is the only such artifact to have been found in a mammoth kill site.



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