



Over The Edge

Vore Buffalo Jump Foundation Newsletter

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P.O. Box 369

Sundance, Wyoming 82729

Invitation to VBJ Foundation's 33rd Annual Meeting

By Jacqueline Wyatt—VBJF President

On behalf of the VBJF board, I would like to invite you to attend the annual meeting of the Foundation, which will be held October 19 at 10 am at the Vore Site. During this meeting, I will give an update on the state of the Foundation finances, exhibit development, and progress made toward curation of the Vore Collection housed in the University of Wyoming Archaeological Repository. The Site will be open at 9 am; board members will guide tours.

At the annual meeting, we also acknowledge our board members and volunteers who take care of site upkeep and make sure that our summer interpretive program and our field trip program run smoothly. Currently, our board includes Chris Johnson (vice president), Ted Vore (treasurer and all around handyman), Lynette Wermager (secretary), Adrienne Keller (who has been a landscaping wonder this summer), Curt Wiseman, Cliff Knesel, and Matt Stefanich. Although not officially a board member, Suzanne Boykin also regularly attends board meetings and helps out. From far away in Oregon, past board member Gene Gade is also a critical contributor. He is responsible for pulling together our newsletters and helps with exhibit development.

The VBJF relies a great deal on donations from our members and supporters to fund our educational and research missions. In March, the Sundance State Bank donated \$2,500 to support the Vore Scholars Program. This program provides

work on the Vore Collection, which is housed in the University of Wyoming Archaeological Repository. Donations from our supporters also funded work by a UW graduate student, Mackenzie DePlata Peterson, on the Vore Collection, this past summer. We appreciate all that the Wyoming State Archaeologist Spencer Pelton does to support these research efforts. We also received a welcome donation of gravel delivery from Timberline Services. Amazing how much gravel it required to make sure our dart throwing area wasn't muddy for spring field trips!

Volunteers Ted Vore, Adrienne Keller, Kelsey Bean, Michael York, Pete Davis, Curt Wiseman, Dave Osborne, Chris Johnson, and Lynette and Kevin Wermager insured that about 500 students from schools in Wyoming (Gillette, Sheridan, Newcastle, Worland, St. Stephens, and Bighorn) and Rapid City, SD who visited in the spring had a great time learning about the Plains hunters who used the Vore Site. We are expecting multiple schools for field trips this fall and would welcome new helpers. If you are interested, please email info@vorebuffalojump.org.



Wyoming Cultural Trust Fund provides grant for skull exhibit

The VBJF has received a grant from the Wyoming Cultural Trust Fund to create an exhibit of approximately 17 bison skulls that were removed from the Vore Site sinkhole during excavations conducted by the University of Wyoming in the early 1970s. This exhibit will visually emphasize the number of bison killed at the Vore Site and will acknowledge the contributions of the Vore family to the development of the Site.

The skulls for display as part of the exhibit, as well as additional skulls that will be useful for research, will be prepared in the University of Wyoming Archaeological Repository. Exhibits will be developed by Gene Gade, a founding member of the VBJF and foremost lay expert on the Site. Displays will include photos and text and will explain how these skulls have helped archaeologists understand the mass kills and butchering that occurred in the sinkhole. Graphic artist Deb Walters will design the displays; Deb has had a hand in most of the current exhibits at the Site. We expect that much of the exhibit will be ready for our opening in June of next year.

One of the goals of this exhibit will be to acknowledge the contributions of Woodrow and Doris Vore, who supported the VBJF from its founding and donated the land that encompasses the sinkhole to the VBJF, Theodore Vore, a founding member of the VBJF who serves as board treasurer, and Jan Vore Lund, who had a hand in the modern history of these skulls. The Vore Site was discovered accidentally when highway department engineers were surveying for construction of interstate 90. The University of Wyoming archeologists responsible for the excavations used a barn on the Vore Ranch as a staging area, and when they left after the summer of 1972 – taking about 4 tons of bison bones with them – a large number of bones remained in the barn. Jan and her husband Jim rescued the 63 skulls we are now planning to clean and stabilize. They traveled with the Lunds until they were returned to the Vore Site several years ago.



The exhibit made possible by a grant from the Wyoming Cultural Trust Fund will include this skull, which was one of the first complete skulls removed from the sinkhole during the first summer of excavations in 1971. The skull was given to Doris and Woody Vore and until recently hung over the fireplace in the Vore ranch house. This skull demonstrates the unique preservation of the artifacts in the sinkhole: The horn sheaths are intact. These sheaths are grown by specialized hair follicles and are composed of keratin, the same protein found in fingernails.

These skulls were transported to the University of Wyoming Archaeological Repository (UWAR) this fall, where they are now stored with the rest of the Vore Collection.

Despite the fact that these skulls have no provenience (the term archaeologists use to mean that they do not know exactly where in an excavation an artifact came from), these skulls are of high scientific value.

Skull morphology tends to be highly sensitive to environmental and evolutionary processes that inform on ages, sexes, environmental stressors, and hereditary relationships in ways that other bones of the bison skeletal anatomy do not. Thus, after cleaning and stabilization, UWAR staff will create high

-resolution, digital 3D models of each skull to facilitate detailed research of their morphology, both anatomical characteristics and human modifications like brain removal cavities and cut marks.

The grant application was well received by the Wyoming Cultural Trust Fund board. Of importance to the application were letters of support from Jack and Mary Ann Sty, who are long-time VBJF supporters, Emily Driskill, a 4th grade teacher in Rozet who has brought her students to the Site for field trips for many years, and Andy Miller, president of Sundance State Bank.

Vore Scholars Enhance The VBJ, Then Move On To More Study & Careers

The Vore Scholars Program provided stipends for two interns during the 2024 spring semester. One of these Scholars was Jaimie Adams. Jamie is originally from a small town in East Tennessee and earned her Associate of Arts degree from St. Petersburg College. Jamie graduated this spring and is now attending Eastern New Mexico University as a graduate student. Jaimie wrote, "The

internship at the Vore Buffalo Jump Site has been an incredibly meaningful and educational experience for me. I have gained extensive knowledge about the site's history and its use by Indigenous peoples. I learned how to properly clean and assess bones and arti-



Jaimie Adams

facts, understanding their significance in human history. One of the key skills I acquired was bone taphonomy, which helps determine how and why bones were used. I also learned to distinguish human-made cut marks from those caused by root etching or animal gnawing. This experience has been pivotal for my future career in archaeology and cultural resource management. Additionally, I gained insight into the operations of an archaeological repository, including preservation techniques and data management. This internship has provided me with invaluable real-world experience. Thank you, Vore Buffalo Jump Foundation, for this incredible opportunity!"

Spring 2024 Vore Scholar Katherine Harris graduated with her BA in Anthropology in May. In early June, she joined TerraXplorations in Tuscaloosa, Alabama, as a laboratory technician. TerraXplorations is a cultural resource management company. As part of a military family, she says that she "grew up all over", and this job will bring her close to family. Katherine shared,



Katherine Harris

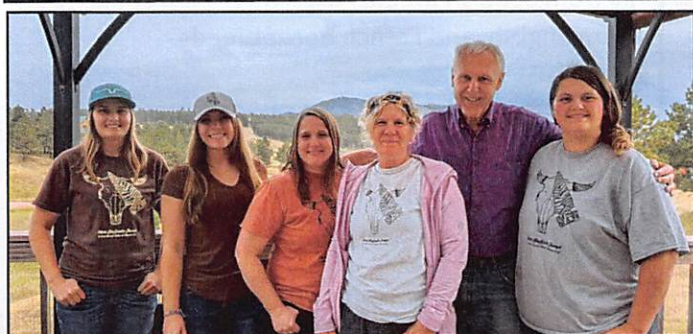
"The Vore Foundation and this internship have opened new doors for me post-graduation. I have learned quite a bit during my final semester, and I can't wait to continue practicing everything. Something that I particularly enjoyed was getting to do Facebook posts! I loved being able to research topics related to Vore or write about some of the actual artifacts I worked with, and I'm glad I got to share some of that information!" Check out the posts from Katherine and Jamie on the Vore Buffalo Jump Facebook page!

Belitz Repairs Tipi



Larry Belitz

In 2014, students from Chief Dull Knife College, instructed by Larry Belitz, constructed a brain-tanned bison hide tipi. This tipi is on display in the excavation building at the Vore Site. This project was supported by the Wyoming Cultural Trust Fund and the Wyoming Humanities Council. This winter, Mr. Belitz, who is pictured here, repaired rodent damage and rebrained the hides to soften them. Belitz is one of a very small number of experts in the nearly lost art of brain tanning.



Summer 2024 Interpretive Staff

The summer season was successful thanks in large part to our interpretive staff (left to right) Isabella Nicholas, Briska Johnson, Heidi Johnson, Jennifer Adams, Michael York, and Aislinn Riley. Not pictured are Becky Holt, Jacquie Holt, and Chris Taggert.



Native American Horses

Who? When? How?

By Gene Gade

Historians have simply been wrong about when and how Native Americans acquired horses in western North America!

Indians on horseback. In the West, it is hard to envision one without the other. Yet, the history of how and when the Indian and horse relationship came to be has been controversial among academics for many years.

The dominant narrative for decades has been that Native Americans did not obtain significant numbers of horses until the Pueblo Rebellion of 1680 A.D. According to that version of events, the Spanish colonial law strictly forbade Indians from acquiring horses. However, the Rebellion caused Spanish colonialists in the Southwest to flee for their lives to Mexico, in the process abandoning their ranches and settlements so rapidly that thousands of horses were left behind. These vast herds, so the story went, were captured and sold by Puebloans to nearby tribes such as the Comanches, Utes and Shoshones. Horses were then dispersed northward to other tribes, both east and west of the Rockies, via

Native Americans have long disputed that timeline of acquiring horses. Several tribes have oral traditions that they had horses significantly earlier than 1680. However, historians gave little credence to these verbal accounts, depending instead on sparse written records of Conquistadors and often-biased observations of Euro-American explorers. Most of the latter were made in the 1700's, well after the Pueblo Rebellion and horse dispersal occurred.

Science Catches Up With Oral Traditions

Recent research suggests that the traditional tribal accounts were closer to truth than history books. In March 2023, the prestigious journal *Science* published an article titled "Early Dispersion of domestic horses into the Great Plains and northern Rockies". The primary authors, William Taylor, Pablo Ribado and Ludovic Orland joined with 84 co-authors representing several fields of study and 66 institutions from around the world to publish their findings.

The paper included studies of horse bones recovered from several archaeological sites including one from southwestern Wyoming and others from Idaho, New Mexico, Kansas and Nebraska. The bones were thoroughly examined by experts in horse anatomy, then carbon-dated and analyzed using state-of-the-art technologies including DNA testing and assay of stable isotopes of strontium and other elements. Strontium is an element that is right below calcium on the Periodic Table and has similar chemical properties. Minute quantities of strontium are found in an animal's food and water. Thus, like calcium, strontium atoms are incorporated into growth layers in teeth and bones.

Different food and water sources have distinctive chemical properties. Tiny quantitative and qualitative differences of chemistry within layers in teeth indicate changes in diet that may, in turn, indicate seasonal differences or movements from one area to another.

Notable Results Of The Research

First, there is conclusive evidence that Native Americans possessed some horses by 1550, possibly earlier, and that horses were present at locations far from the Spanish settlements. That is more than a century before the Pueblo Rebellion!

Second, Native American horses are descended primarily from Spanish breeds, with latter influx of genes from English and French horse breeds.



Horses enabled Native Americans to move much farther, faster and with heavier loads, but their cultural importance was much more than mere logistics. Horses are revered as sacred kin by many Indigenous Americans.

It has long been known from fossil records that horses evolved in North America and then migrated across the Bering land bridge to Asia during the Ice Age. They became extinct in North America after the continental glaciers retreated, probably due to a combination of rapid climatic/ecological changes and, possibly, because they were over-hunted as food by humans when they entered the continent. However, horses were domesticated in Eurasia, bred in huge numbers, used extensively by several cultures and then reintroduced to the Western Hemisphere by European colonialists.

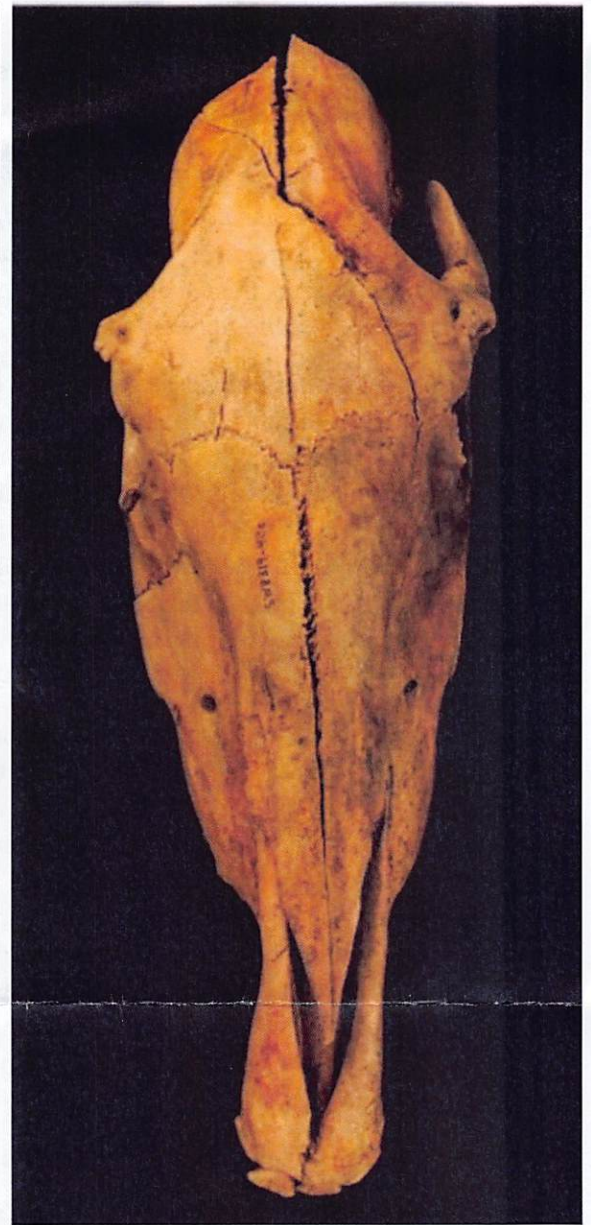
DNA studies strongly support the belief that Indian horses are descended from European breeds. However, some Native American tribes maintain that the original horses never became extinct and that they have always maintained a kinship relationship with equines. Some scholars suggest that the extinction of horses was as recent as 6,000 years ago and that knowledge of these horses was preserved as “memories” via stories and legends.

Telltale Evidence On Horse Skulls

The horse foal skull in the photo (right) was excavated from the Black’s Fork site, a tributary of the Green River in what is now southwest Wyoming. The skull is dated at about 1650, 30 years before the Pueblo Rebellion, and has several features that suggest it was a domesticated horse. At the base of the skull is an ossified ligament that is characteristic of horses that have been tethered or confined and possibly used for transport. It has a healed fracture where it was kicked by another horse, indicating a level of veterinary care and that it had probably been confined with other horses. Finally, it was buried with three coyote skulls, which suggests that it was interred with ceremony and was clearly valued by the humans who handled it.

The skull of a 9-year-old horse found in a site on Kaw River in Kansas, dated at about 1650, shows that it was likely ridden by Indians who controlled it using a bridle with a Spanish-style curbed metal bit. The Kaw horse had damage to its palate consistent with that caused by curbed bits. It had damage to premolars, osteoarthritis of its jaw joint and “remodeling” of its upper jaw, all of which were likely caused by a metal bit. The Kaw horse, like the Black’s Fork foal, showed deformation of the nuchal ligament at the back of the skull which was likely due to halters or bridles pressing on that connective tissue over time.

Isotope analysis of teeth from the Kaw horse skull suggest the teeth were from an animal that had been moved from a site farther north with predominantly cool-season grass species to a more southerly location with warm-season grasses, and possibly fed supplemental corn. This and other evidence indicate that Indians possessed, herded, used and cared for horses earlier than previously thought.



Skull of the Black’s Fork Foal

Huge Impacts On Tribes

The Comanche gained fame as superb horse-mounted hunters and warriors who were the virtual lords of the southern Plains, and who strongly contested Anglo-Americans expansion into Texas and surrounding areas in the early 1800’s. Less well known is the fact that Comanches were a Shoshonean subgroup that migrated to the southern Plains only a century before (early 1700’s) from southwestern Wyoming. According to the *Science* article, “the ancestral Comanche had already integrated horse raising, ritual practices and transport into their lifeways at least a full half century before their southward migration, effectively moving to the southern plains as horse herders. Once on the southern plains, the Comanche were able to...

...build an empire on horse and bison trade by the middle of the 18th Century CE. By the time Europeans arrived in southwestern Wyoming, the area was already a critical "secondary diffusion center" for horse transmission to Northern Plains groups...the possibility of a rapid, non-European transmission of horses farther northward, including the Columbia Plateau, the Canadian Rockies and the middle- and upper-Missouri regions."

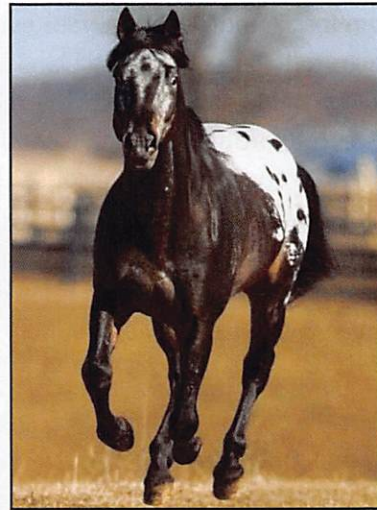
The Black's Fork foal was probably in possession of the ancestral Comanche/Shoshone before their move to the southern plains. The hypothesis about the Comanche role in horse dispersion would provide another century and a plausible mechanism for the still-rapid population growth and dispersal of horses to the Northern Plains tribes. Capture of large herds of horses in the wake of the Pueblo Rebellion may then be viewed as a great windfall that accelerated the process.

How Native Americans first acquired horses remains a mystery. Did some horses escape, become feral and then get recaptured by Indians? The Spanish essentially used the Puebloans as slaves. Were some of them assigned to care for their horse herds and did the Puebloans take a few horses and use them in trade? Did neighboring tribes observe Spanish use of horse, understand how valuable the animals were and simply take some? All of the above as well as other scenarios are possible. However, there probably no single event, such as the Pueblo Rebellion that released huge numbers.

What's It Got To Do With The Vore Site?

One of the main things that makes the Vore Buffalo Jump scientifically and historically important is that it was used in the critical transition period when modern tribes were consolidating, migrating over long distances, trading, vying for territories and incorporating revolutionary technologies (ex. metal tools and other manufactured trade items) and, most important of all, horses, into their cultures.

The changes wrought by the horse were fast and profound. Several tribes, including the Crow, Cheyenne, Arapaho, Lakota, Arikara and Pawnee had previously built their subsistence around growing corn and harvesting other plants, supplemented by a seasonal communal buffalo hunt (jump or pound). They quickly and greatly reduced their dependence on farming in favor of year-round buffalo hunting on horseback when they acquired enough of the fast, powerful steeds to make it possible. Some tribes even bred horses selectively to create their own distinctive breeds (ex. the Appaloosa developed by the Nez Perce in the northwest). These are truly revolutionary changes. Since the beginning, our interpretation at the Vore Buffalo Jump has



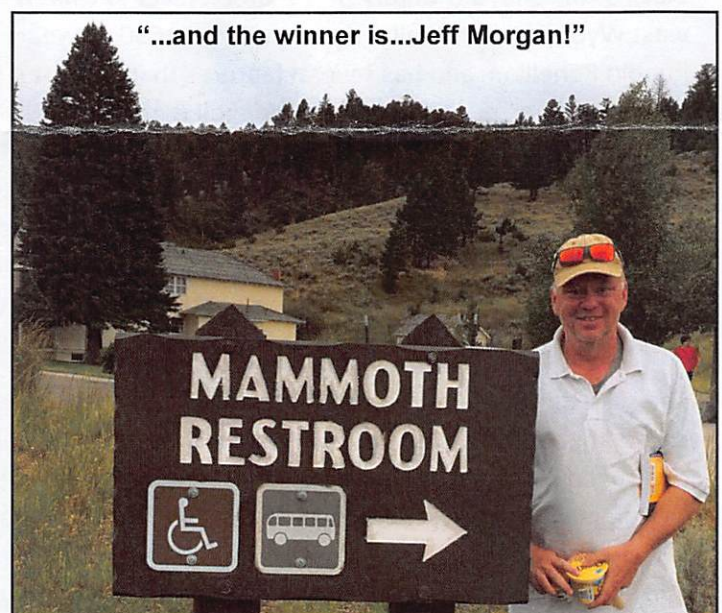
been that these transitions were progressing rapidly in the mid-1700's and that horses allowed direct pursuit and hunting possible...making the Vore Site and other buffalo jumps obsolete before 1800.

The new concept of horse dispersal dovetails well with VBJ archaeology and better explains its timing. It is quite possible that

further research at the

Vore site can help provide information on the when, where, what, who and how questions of the Plains Indian transitions in the Black Hills region.

In any case, it is clear that acquisition of horses brought western tribes into a brilliant cultural flowering that lasted a century, then, tragically for them, faded as quickly as quickly as it blossomed.



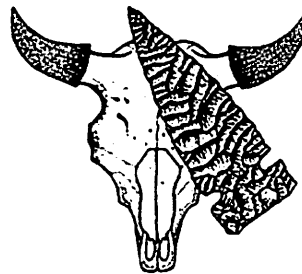
"...and the winner is...Jeff Morgan!"

The winner of our winter drawing for a Dave Pauley print of the Vore Site was Jeff Morgan. He is a long-time VBJF supporter. He lived with his family at Ranch A when it was a US Fish and Wildlife installation from 1974 until 1979, when he graduated from Sundance High School. Jeff remembered, "We drove past the buffalo jump every day on our way to school (I-90 was built at some time in this period but in the early years there was no interstate). Jeez, I feel old now. We took a feeder school bus from Ranch A down to Beulah (Doris Talley was the bus driver) and then another bus picked us up in front of the Trading Post (Tom Graham was the bus driver). I have to say, the years in Beulah seem like a blur now, but I remember visiting the buffalo jump a couple of times when we were kids, maybe with 4-H because the Vore family was involved. It's amazing to see the work that has been done by the Foundation to preserve and develop the site." Jeff shared a photo of a recent visit to Yellowstone, since it has a touch of Wyoming in it.

Catch the Dream...

Become a Vore Buffalo Jump Foundation Member

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Contact us by e-mail at info@vorebuffalojump.org.

The VBJF is a 501(3)(c) non-profit organization. The Foundation is administered by a volunteer board and has almost no administrative overhead. Membership dollars and contributions go almost entirely to fund site improvements and interpretive programs.