

Over The Edge

Vore Buffalo Jump Foundation Newsletter

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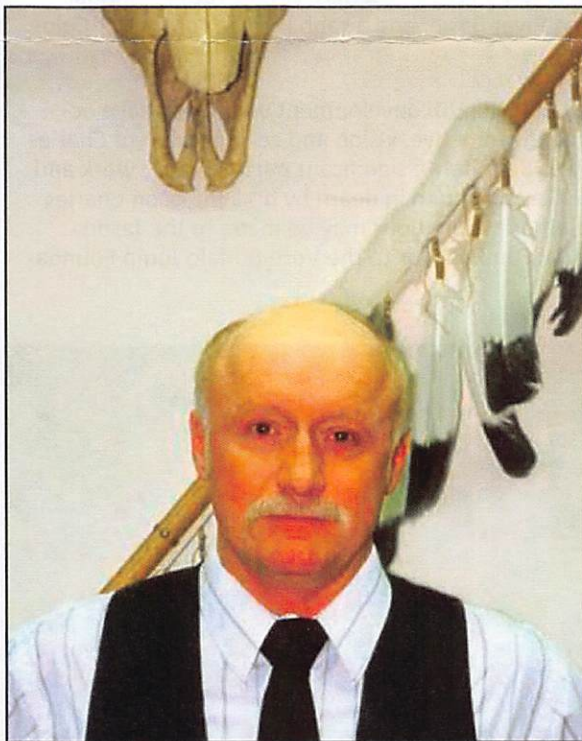
Charles A. "Chuck" Reher – Original VBJ Archeologist Has Passed Away

It is with great sadness that we report that Charles A. "Chuck" Reher passed away on September 22, 2024. As a young graduate student in archaeology at the University of Wyoming, Chuck was the crew leader on the original 1970's excavations of the Vore Buffalo Jump. He spent two field seasons on those investigations under the mentorship of George Frison while completing his Master's degree, and used a mountain of VBJ data in his PhD dissertation at the University of New Mexico. Reher and Frison later collaborated to author the monograph published in *Plains Anthropologist* in 1980 that remains the definitive literature describing the Vore Site.

Woody and Doris Vore and their children, who owned the ranch on which the site was located, decided to donate eight acres at the site to the University of Wyoming with the condition that it be developed as a research and education facility within a dozen years. Their son, Ted, was designated as the family's primary representative on the project.

Reher was then able to obtain funding from the Wyoming Legislature to obtain funding for a study of the feasibility of developing the Vore Site. Reher studied various facilities that combined on-going scientific research with public access and interpretation, coming up with the basic vision that still informs Vore Site development, namely that research should continue and that it be the basis of excellent public education programs and that quality regional economic development would follow from that. He was adamant that the VBJ not become a "cheap tourist rip-off selling chicken-feather head-dresses and rubber tomahawks".

In the late-1980's, Doris and Ted Vore, Reher and interested people from the region got together to support the Reher-Vore vision for development of the archaeological site. The



Dr. Charles A. Reher

Chief Archaeologist at the Vore Buffalo Jump

group eventually coalesced and acquired the legal status to become the non-profit Vore Buffalo Jump Foundation (VBJF). Neither the University nor the Foundation was initially able to generate sufficient funding for the envisioned world-class (continued)

Update on the Vore Buffalo Jump Foundation

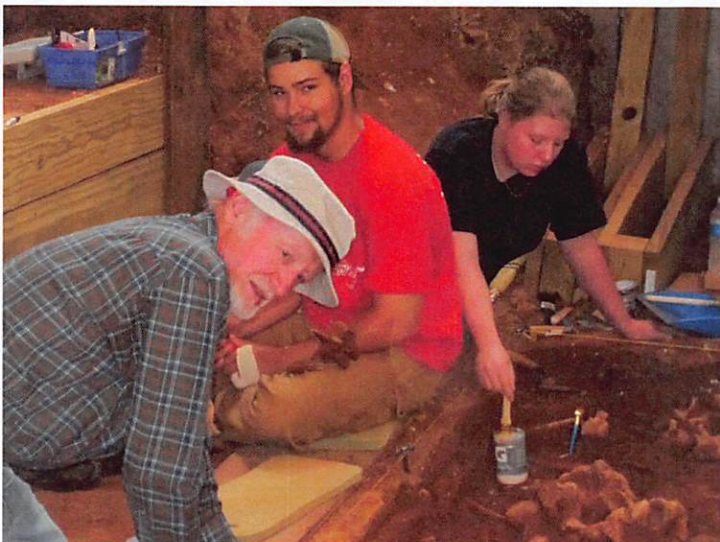
By Jacqueline Wyatt - President of VBJF

visitor center. In the late-1980's, Reher and the VBJ Foundation opened a small excavation unit in the sinkhole. Reher brought his UW Archaeological Field School from Laramie for a couple of weeks and the Foundation provided a metal cover that protected the site, but that could be opened to allow interpretation of the site. That rudimentary pattern, two-weeks of Field School excavation and summer-long interpretation, continued for a number of years. For at least two and a half decades, the VBJ project was "Chuck's Baby".

Eventually it became clear that UW would never have the resources or priority to fund the construction of a major visitor, so the property deed was transferred to the VBJF. The Foundation then began the slow grind that has resulted in the current state of development. Dr. Reher remained on the Foundation board and continued as Chief Archaeologist for the VBJ and helped curate the VBJ artifacts at UW until recently.

Chuck became a professor at the University of Wyoming in 1976, and he taught undergraduate and graduate classes until retirement in 2014. During his tenure at UW, he was director of the Archaeological Field School Program, Territorial Prison Archaeology project, University of Wyoming Anthropology Museum, and the Dendrochronology Laboratory. He was the Tribal Archaeologist for the Shoshone and Arapahoe Tribes on the Wind River Reservation for over 20 years. According to his daughter Anne, his family and friends will remember him best for his story telling. He was passionate about his career and truly loved what he did. He is survived by his wife Sandy of 57 years, who accompanied him on many of his archaeological adventures to sites in the High Plains of southeast Wyoming and northeast Colorado, in the Black Hills, Grand Teton National Park, the Wind River Basin, and a sabbatical in southwest Colorado.

It is fair to say that the VBJ development would not have occurred without the initiative, vision and commitment of Charles A. Reher. It was definitely a significant part of his life work and legacy. Chuck was preceded in death by his son, Jason Charles Reher, and memorial donations may be made to the Jason C. Reher Memorial Fund and/or to the Vore Buffalo Jump Foundation.



Chuck Reher doing what he loved, leading his students from the University of Wyoming Archaeological Field School as they excavated at the Vore Site.

As I did at our annual meeting this fall, I would like to use this space to acknowledge those who have made important contributions to the VBJF in 2024. Our all-volunteer working board includes Chris Johnston, Ted Vore, Lynette Wermager, Curt Wiseman, Adrienne Keller, Matt Stefanich, and Cliff Knesel. Special thanks go to two board members: Ted Vore, who is our treasurer and also our plumber and carpenter, the one who makes sure all supplies are on hand to keep us operational during the summer, and who helps with pretty much every field trip, and Adrienne Keller, who kept the site landscaped all summer long and who also helped with almost every field trip. Gene Gade also deserves special mention as the newsletter you are reading would not have come together without him.

We had a decent summer season. Our excellent staff took about 3430 visitors on tours. This number was down about 25% from 2023 but was similar to the number of visitors in 2022. Importantly, the dollars that came in through admission charges were enough to pay wages and bonuses for the staff.

It has been a good year for educational and research efforts. This year, board members and volunteers hosted about 900 students plus teachers, parents, and grandparents from 23 schools during our field trip program. Elementary-age students came from near (Newcastle, Rozet, Recluse, Moorcroft, Gillette, and Hulett in Wyoming and Lead/Deadwood in South Dakota) and far (Casper, Sheridan, and Worland in Wyoming). We also hosted groups of middle school students from Rapid City, St. Stephen's Indian School, and American Horse School, all in South Dakota, and – our furthest travelers – from Orange County, California. Volunteers are an absolute necessity for these field trips as we rotate the students through five or six stations. This year, volunteers included Ted Vore, Adrienne Keller, Michael York, Kelsey Bean, Pete Davis, Jacquie Holt, Curt Wiseman, Dave Osborne, Pete Davis, Chris Johnston, Lynnette Wermager, Kevin Wermager, Becky Holt, Marcy Haver, Suzanne Boykin, Heidi Johnson, and Zach Davis.

Now that the Vore Collection of about 22,000 artifacts has been curated, our focus has turned to funding research. As you will read elsewhere in this newsletter, we have two excellent interns this semester, Michael Thom and Anatoliy Zayarko, and are currently funding work by a graduate student, Mackenzie DePlata Peterson. The researchers funded by the VBJF are being mentored by Wyoming State Archaeologist Spencer Pelton and Cassidee Thornhill of the University of Wyoming Archaeological Repository. We expect that published articles resulting from this work will increase interest in the Vore Site within the scientific community.

Work is progressing on new exhibits that will showcase tools and projectile points (with funds from the Glen Wyatt memorial) and that will display bison skulls and honor the Vore family (supported by a grant from the Wyoming Cultural Trust Fund). We have also received donations in memory Charles Reher that will be used to prepare an exhibit to acknowledge his contributions to the development of the Site.

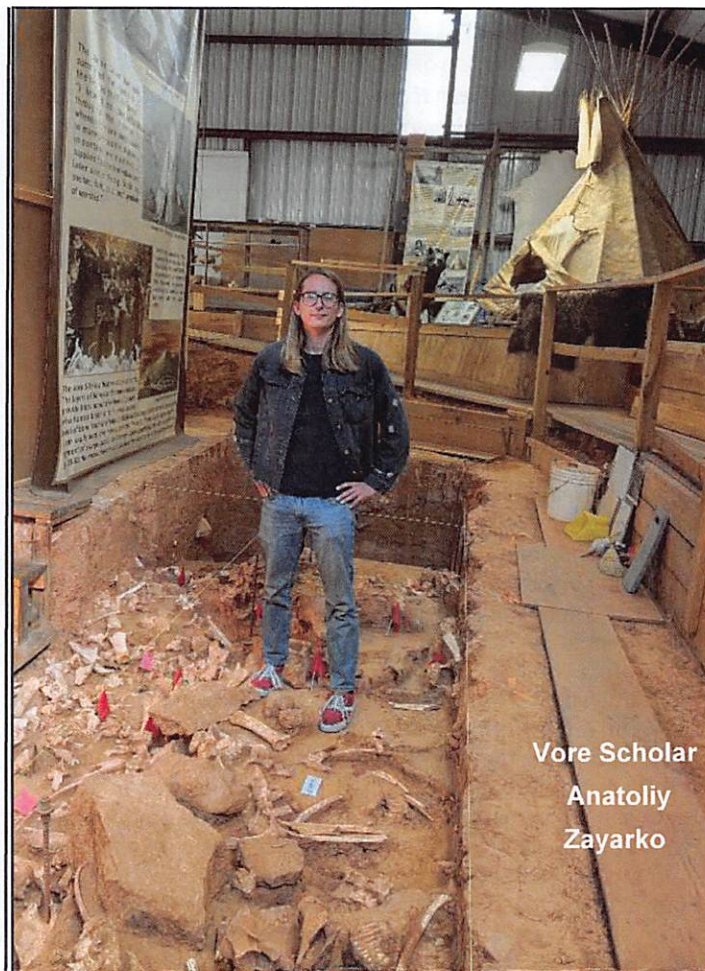
Keeping the treasure that is the Vore Buffalo Jump operational and furthering our educational and research goals would not be possible without your donations. So as is traditional in this end-of-the-year newsletter, please renew your membership in the non-profit VBJF and maybe give a little extra to support our research efforts. Each \$50 contribution will enter you in a drawing for a signed print of the Vore sinkhole painted by Dave Paulley. Thanks very much for your support of the VBJF!

Vore Scholars Continue Work On Collection of VBJ Artifacts

Again this semester, the VBJF is supporting work on the Vore Collection, which is housed in the University of Wyoming Archaeological Repository, by two students. Michael Thom grew up in Washington state, graduated from the University of Washington in Seattle, and is now a graduate student at the University of Wyoming. He says, *"This internship provides a once-in-a-lifetime opportunity to meet prominent professionals, engaging storytellers, learn a fine craft, and connect to peoples and animals, belonging to a time in history, which saw dynamic change, and which animates my imagination like nothing else. Until you've been there, truly been there, crouching over those bones, you can't truly resonate with the jaw-dropping grandeur this site is enshrouded in."*

Michael has organized the projectile point database and is now writing an article on the two bone projectile points found at the Vore Site. These are unique artifacts: Only two have been found at the Vore Site, where about 200 stone projectile points have been found to date, and this type of point has rarely been found at other prehistoric sites. One other site known to have yielded a bone projectile point is situated in Nebraska along the Dismal River. The Humphrey Site is located on a terrace about 20 feet above the flood plain of the river. The Humphrey bone projectile point has almost identical morphological features to the bone points from the Vore Site. Unlike the stone projectile points found at the Vore Site, however, the Humphrey Site stone points are "almost entirely triangular in outline," as described by the site's archaeologist James Gunnerson in his 1960 publication, "An Introduction to Plains Apache Archaeology - the Dismal River Aspect".

Michael is interested in the Apache peoples' connection to the two sites. Gunnerson notes that such bone and antler tools were "important in the Dismal River complex." Michael noted: *"Though there may only be two, nevertheless, they are vital keys of insight into past lifeways and may shape our understanding about a rare class of artifacts in the days ahead."*



Vore Scholar
Anatoliy
Zayarko

Our other Vore Scholar is Anatoliy Zayarko, who is a junior at the University of Wyoming. He is originally from Kyrgyzstan and was inspired to study archaeology by the pastoralists of Central Asia and all the material culture people have been leaving behind for thousands of years in this region. Both students contribute "artifact of the week" posts to the Vore Buffalo Jump Facebook page. Both are excellent writers and have shared very interesting information this semester.

During our field trips, we talk to the students about how scavengers would have taken advantage of meat left behind by hunters who used the Vore Site sinkhole as a trap. During the 1970's excavations, archaeologists found bones of a grizzly bear. This captured the imaginations of Hulett 4th graders, so Anatoliy went searching in the Vore Collection at the University of Wyoming Archaeological Repository for the remains of this now infamous grizzly. He discovered five bones that had been found in the sinkhole during the excavations in the 1970s: two metacarpals and one metatarsal, otherwise known as finger and toe bones or phalanges, one scapula, and one fibula shaft. Anatoliy says that based on visible epiphyseal fusions (in lay terms, growth plate closure), the bear was an adult. (Continued on next page)



Vore Scholar
Michael Thom



A rare bone
projectile
point from
the VBJ



A portion of a
scapula from a
grizzly bear that
was probably
scavenging at
the VBJ

("Scholars" continued)

Here is Anatoliy's version of the bear's story: *One possible reason this bear would have been there is that it simply wanted to feed on the abundance of bison carcasses that would have been found on the bottom of the pit. Maybe the discovery of this bear shouldn't be too surprising, after all there have been other carnivores found during excavations including canids. According to the same faunal analysis done by Walker, grizzly bears were likely much more common in the western US than they are today, probably more common than black bears up until pioneer times.*

Anatoliy's Tales From Teeth

Vore Scholar Anatoliy Anatoliy Zayarko cleaned a mandible fragment with teeth still attached and shared as his "artifact of the week" the importance of teeth in archaeology. He wrote, "Teeth form



over time via accretion, meaning gradual growth in layers, kind of like an onion with all its layers. I think teeth are some of the most fascinating bones in the body, and they preserve a treasure trove of information. Isotopic analysis of oxygen atoms in teeth can tell researchers what kind of a climate any given animal or person lived in. Different temperatures create different amounts of the heavy oxygen 18 isotope in the environment. Sophisticated machines called mass spectrometers separate various elements, and their isotopes, based on weight and are able to tell you a precise amount of oxygen 18, 17, and the most common oxygen 16 isotopes in terms of ratios. These ratios can then be used as a proxy for temperature, even change in seasons can be seen using this method! Since teeth are layered, researchers can see various changes in the paleoenvironment and match that to an animal's stage in life."

Points From All Compass Points

Michael Thom organized the approximately 200 projectile points from the Vore site by the cultural layer in which they were found. He wrote for our Facebook page, "The variability in morphology between Vore's small projectile points, as one dives further into the sinkhole is striking, and indicative of the several Late Prehistoric tribes who came "from all points of the compass," as the late Dr. Reher commented, for the crucial undertaking of securing autumn kills before the intense Plains winter. Despite the diversity in point styles, and the time periods in which they may be attributed to, the craftsmanship executed remains consistent and impressive. The pristine condition of these points, and the discipline, skill, and talent required to manufacture them, is awe-worthy, and a testament to the cultural significance that such artifacts signify. The point in my hand, excavated 88" beneath the surface, likely starting out as an unruly clump of chert."



VBJ projectile points show many styles, stone types and, probably, different tribes

Comparing Bone Beds

Last spring, the VBJF board made the decision to support research by a graduate student. Mentored by Wyoming State Archaeologist Spencer Pelton, Mackenzie DePlata Peterson is currently researching the spatial locations of bison pelvic bones in an attempt to shed light on the direction the bison herd entered the sinkhole. Mackenzie's master's research at the University of Wyoming was a two-layered investigation of proboscidean (mammoths and mastodons) sites. She sought to understand whether bonebeds look differently when humans are manipulating the animals versus a natural death site. The conclusions were quite surprising. Specifically she discovered that for mammoths and mastodons, bonebeds where humans were present and bonebeds where humans were not, look the same!

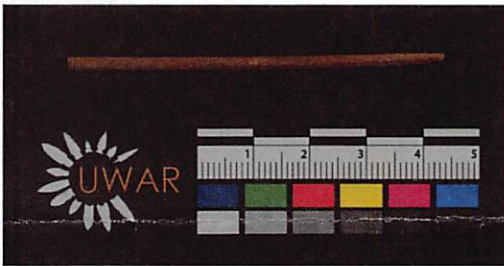


Mackenzie DePlata Peterson

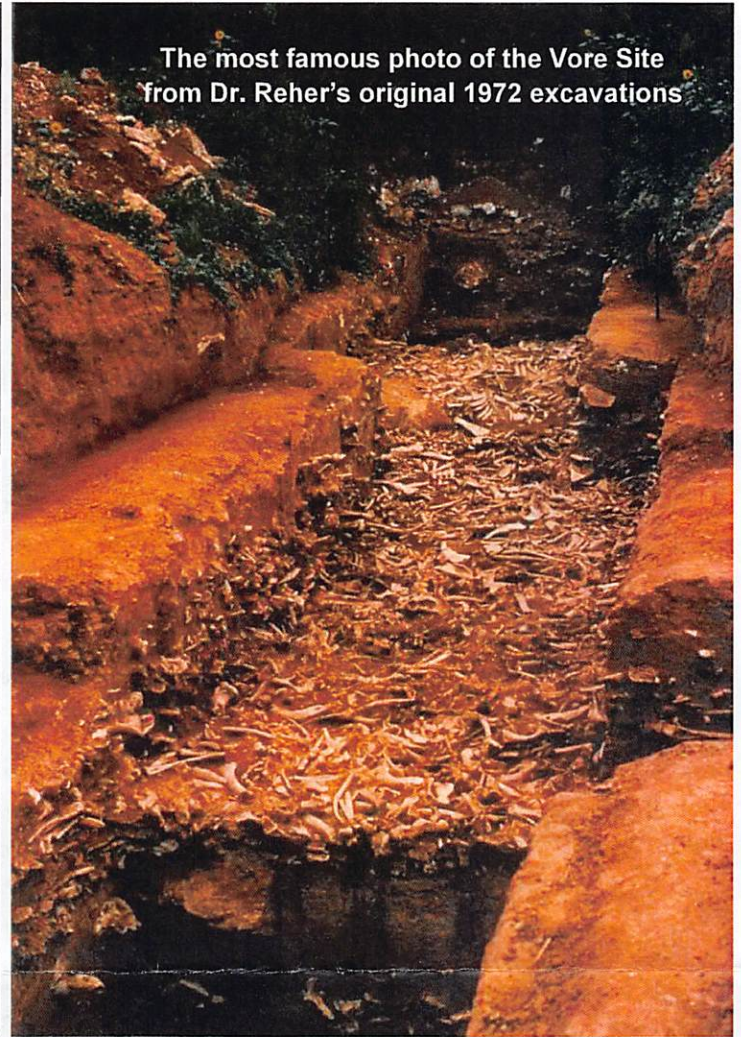
The Vore Scholars program is supported by donors to the VBJF including Sundance State Bank and by a grant from the Wyoming Cultural Trust Foundation. We plan to continue funding both undergraduate and graduate research on the Vore Collection in 2025. Support from our members is critical to this effort! Please consider a donation to support students and further research and at The Vore Buffalo Jump.

Needle In A Bone Stack

UWAR technician Kassandra Dutro was responsible for curation of a bone needle found in the Vore Site sinkhole and shared this last semester as an "artifact of the week" post on Facebook. The bone needle shown in these photos measures 67 mm long and weighs 0.48 grams. Bone tools are less commonly found than tools made of stone because organic material is often poorly preserved at archaeological sites. Bone needles are especially vulnerable because of their small size and fragility. Bone needles have been found at other sites in Wyoming including Agate Basin, La Prele, Medicine Lodge Creek, Hell Gap, and Little Canyon Creek Cave, all sites that date to the Paleoindian period. The bone needle from the Vore site is unique because it comes from a bison kill dated to the late prehistoric. Bone needles were used to sew hides into clothing or tipis or to add beads and other decorative pieces. Bone needles from across North America are of different sizes, leading archaeologists to suggest that different types of needles were used for different types of hide thickness. In Lyman's analysis of various experimental archaeology publications (American Antiquity, 2015), "Total production time per experimentally replicated bone needle is 60-90 minutes for those [about] 2 mm in diameter", so making a needle was labor intensive.



The most famous photo of the Vore Site from Dr. Reher's original 1972 excavations

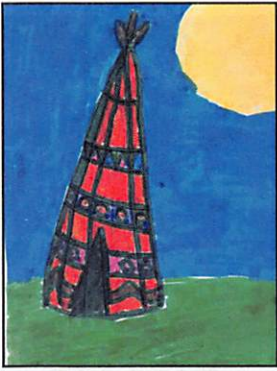


Dupree H.S. Students Visit VBJ

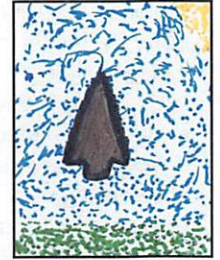
The Vore Buffalo Jump Foundation welcomed students from the high school of Dupree, South Dakota on a field trip this fall. The small town is within the Cheyenne River Lakota Reservation. About 70% of the town and high school population is Lakota.

Samara Ward-Martel, who is a sophomore at Dupree High School, visited the Jump this fall with her World History class taught by Gneve Fordyce. She shared with us her thoughts on the field trip:

I learned about how the Indians chased buffaloes into the sinkhole, which killed them since the sinkhole is about 50 feet deep. I got to go down the walkway and see how deep the sinkhole truly was and saw some of the trash embedded in the walls by the construction workers before they realized that there were ancient buffalo ruins in there. When we went inside the building down in the hole we got to see the bones and tools left behind by the Indians. It was very interesting to see all the bones that were left behind and how the archeologists counted approximately how many bison were killed there by counting a certain bone that the Indians never used. I also learned that the Indians may have camped about 3 miles away from the sinkhole since there was a water source there. I also learned that the Indians had to butcher all the buffalo in approximately 5 days because the buffalo meat would go bad if they didn't. I learned that the hole had a very bad stench and that many animals came to the sinkhole and feasted on the leftover meat. An archeologist found bear bones in the hole, which proves that animals came down to the hole. Overall this was a very educational site to visit and was very interesting to hear about what the Indians did to the buffalo once they died and how they used their remains.



This page features artwork by 4th graders in Anna Backen's class at Hulett Elementary: Tessa, Wilson, Coilee, Dixey, Lydia, Ellen, PJ, Waylon, Berkley, Sadie, Madison, Taysen, Tolkien, and Sterling. They also wrote to thank us (in cursive hand!). Ellen noted that the field trip made her "want to fall into history!" The student's were very taken with the thought that a grizzly bear scavenged in the sinkhole 300 years ago and wrote about the bear when they returned to their classroom.



Berkley wrote from the point of view of the archaeologist who found the bear's bones in 1972:

I was just excavating this bear skull. Do I do this alone? Oh, no. I have a team. Do I know what happened? No, but we are guessing that he sprinted to the rotting smell. He ran to see buffalo falling into the pit. He peered over and fell in. Then he was full and ready to home, but unexpectedly he could not get out. Then he died very, very, very full. I think we are digging him up right now. I think I got the head! You guys want to see?



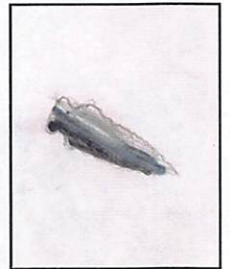
Madison must have been reading Kenneth Thomasma's book as her version features Naya Nuki:

Three hundred years ago, an old bear found a hole. There was a little girl named Naya Nuki in the hole getting food. When the buffalo jumped in the hole, the bear followed them to the bottom. The bear tried to get out, but he couldn't. So he just at the buffalo and took a lot of naps. At the end, the old bear died peacefully.



And here is Phillip's story of the bear:

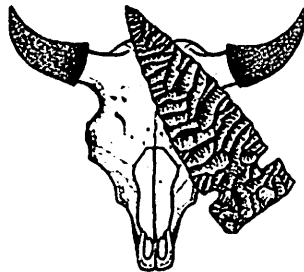
One day over 200 years ago, an old bear was walking along the plains. He came across a buffalo jump. Then he fell down into the jump! He inspected the area, and he said it smelt bad, but since it smelt bad that meant dinner time! The bear had a wonderful feast. He was happy with his life. He had grandkids, a wife, three beautiful girls. Old bear went over to a corner and went to sleep forever. He was very happy.



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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.