

Bearlodge Quarries and Vore Site Lithics

By Cliff Knesel — US Forest Service Archaeologist

In about every square meter in every cultural layer in the Vore Site sinkhole, archaeologists have found a stone tool, a projectile point, or flakes that resulted from sharpening of a tool. In the seminal monograph on the Vore Site published in the 1980, University of Wyoming professors Charles Reher, long-time chief scientist at the Vore Site, and George Frison, noted that most of the material for these tools and points are of just a few types: Knife River flint, from quarries located in what is now North Dakota, porcellanite, which is found in the Powder River Basin where coal beds burning underground under pressure result in a knappable rock, and quartzite. Dr. Reher speculated that much of the quartzite came from the Spanish Diggings quarries, which are located about 130 miles south of the Vore Site near Lusk, Wyoming. There are, however, sources of quartzite considerably closer to the Vore Site.

Dr. Spencer Pelton, the Wyoming State Archaeologist, organized a field trip in July to investigate information provided by Sundance resident Duane Thompson regarding a source of quartzite that is similar in appearance and quality to the lithic tools found at the Vore site. Mr. Thompson found outcroppings of quartzite in the Bear Lodge Mountains south of Cook Lake that had clearly been mined. The goal of the trip was to visit the sites found by Thompson, to take photographs, and to collect comparative materials. Thompson guided a group that included Pelton, Thompon's son Sheldon, Anatoliy Zayarko, Aislinn Riley, Jacqueline Wyatt, and Cliff Knesel to the quarries. Zayarko and Riley are students at the University of Wyoming, who were interpreters at the Vore Site this past summer; Wyatt is the VBJF board President; and Knesel is the Bearlodge District Archaeologist for the US Forest Service as well as a VBJF board member.



One of several small quarries in the Bearlodge Mountains where Native Americans mined quartzite for use in their stone tools and projectile points



This summer a team composed of (left to right) Sheldon Thompson, Aislinn Riley, Jackie Wyatt, Duane Thompson, Cliff Knesel, Anatoliy Zayarko and Spencer Pelton visited quarries in the Bearlodge Mountains that may be the source of some of the artifacts in the stone artifacts found in the Vore Site.

The first area that the group visited was a quartzite outcropping south of a saddle along a north-south trending ridgeline, which housed several quarries. The slopes leading to the top of the outcropping had a significant amount of tested quartzite material, and the group found additional quartzite at the outcrop itself. The Forest Service had not previously documented this area, which will be fully recorded as either a new site or an expanded boundary for a site located to the north. The group took photographs, recorded GPS points, and collected samples for later analysis.

The group also visited two additional sites that are situated on a ridge between two drainages that connect to a permanent stream. High-quality quartzite, mostly a light purple color, is naturally emerging from the ground along the slope. Literally tons of debitage litter the slope and the level crest above. Evidence of mining is visible in the form of a

quarry pit where quartzite has been extracted and discarded chunks have been left downhill. Additionally, there is a small rock shelter that could have accommodated one or two individuals sitting down. Quartzite had been chipped off the inside walls. There are flakes on the floor, on the rock outcrop covering the shelter, and on the surface surrounding it. At the top of the ridgeline, the group discovered three artifacts: a complete gray porcellanite Shoshone knife and two large, damaged bifaces—one made of beige local quartzite and the other made of gray quartzite.



Jackie Wyatt, Anatoliy Zayarko, and Aislinn Riley stand in front of one of the Bearlodge quarries

During the fall semester, Zayarko plans to compare the samples collected in the Bearlodge Mountains to lithics excavated from the Vore Site, which are stored in the University of Wyoming Archaeological Repository. The outcroppings in the Bearlodge are believed to belong to the Lakota Formation, which shares the same geological age as the Cloverly Formation, which is the formation that Native Americans were mining at the Spanish Diggings quarries. Our hypothesis is that the users of the Vore Site used this local stone to make many of the tools and projectile points found in the sinkhole. The Bearlodge quarries are located about 10 miles east of the Vore Site, and hunters could have followed the Red Water drainage from the quarries to the bison hunting grounds.



The photo at left is of a Shoshone knife found by Duane Thompson. It was fashioned from porcellanite, a stone that probably formed near burning coal seams in the Powder River Basin. Shoshone knives are bifaces with a pointed base that was hafted. The blade (right) has a distinctive twist as it was sharpened by a right-handed user.

