



# Cultural Geology Guide

## WYOMING STATE GEOLOGICAL SURVEY

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### Cultural Geology Guide—Green River Basin

The Greater Green River Basin is vast. Historically, it is revered as the heart of fur trapping country, in the era of the Mountain Men. It also served as a major crossing for migrant travelers headed West. It extends from the Overthrust Belt on the west to the Rawlins Uplift on the east. It is bookended by the Uinta Mountains to the south and the Wind River Mountains to the north. The Rock Springs Uplift lies in the center of this basin.



Meet your tour guides, Wayne Sutherland, geologist with the Wyoming State Geological Survey and Julie Francis, archeologist for the Wyoming Department of Transportation.

*"Lake Gosiute disappeared millions of years ago but we can see evidence of how it shaped the cultural landscape since the early days of humans habitation at the end of the last Ice Age, more than 15,000 years ago," says Julie Francis, WYDOT archeologist for the cultural geology guide.*


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### The Great Divide and Green River Basins

By Julie Francis

Modern-day travelers on Interstate-80, west of Rawlins, cross the Continental Divide twice. Between the southern Wind River Mountains and Atlantic Rim southwest of Rawlins, the divide splits, forming the Great Divide Basin along the crest of the continent. It is also called the Red Desert Basin for the red soil derived from Eocene formations that cover the basin's floor. It, along with the neighboring Green River Basin to the west were covered by Lake Gosiute during the Eocene Epoch, 56 to 33.9 million years ago.



Though it disappeared millions of years ago, Lake Gosiute has shaped the cultural landscape of the Great Divide and Green River basins since the earliest days of human occupation at the end of the last Ice Age (15,000 years ago). As the lake dried and was buried by younger sediments, lake-bottom muck slowly became cemented into rock. In some portions of the ancient lake bed, high concentrations of silica bonded the grains of sand, silt and clay. In other places, silica filled the voids left when the hard shells of many small sea creatures dissolved. This resulted in the formation of a variety of hard, glass-like rocks often termed "cherts." These layers of rock were exposed by subsequent erosion and today form hard pavements on the basin floors. Because of their glass-like quality, many of these cherts are well-suited for the manufacture of stone tools and were extensively used by native peoples.

"Tiger chert" is a distinctive variety of these materials. Named for the alternating bands of dark and lighter browns or tans, the banding reflects the yearly deposition of sediment into the bottom of Lake Gosiute. Outcrops of the material occur southwest of Rock Springs and at a few other places in the Green River Basin. The homogeneous nature of the material made it ideal for manufacturing into finely flaked tools, and it occurs in archaeological sites of all ages.

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About 13,000 years ago, Clovis flint knappers, with unparalleled skill and craftsmanship, used this material to fashion Clovis points, large (up to 8" long) and exceptionally thin (ca ¼ to ½") bifaces and other exotic tools. These, along with similar tools made of different raw materials such as obsidian, were stored in caches found as far away as Boulder, Colorado and the Black Hills of Wyoming. Some of the artifacts have been coated with red ochre, suggesting some type of ritual or ceremonial use.



With no major topographic features to serve as shelter, high winds often blow across the open, flat floors of the Great Divide and Green River basins. One result of these winds has been the formation of sand dunes and vast sand sheets. The Killpecker Sand Dunes, in the Red Desert portion of the Green River Basin, is the second largest active sand dune field in the world. It is nearly 50 miles long and up to 10 miles wide. The largest active sand dune is in the Great Nefud Desert of Saudia Arabia, called Jafura and covers an area of more than 550 square miles. The Killpecker Sand Dunes and other dunes in Wyoming have played a major role in the cultural landscape. Native peoples used active dunes to trap game, as well as for gathering a variety of nutritious grasses and plants, which colonize the sandy surfaces. By at least 5,000 years ago, people began digging semi-subterranean lodges into the dunes, providing a home base for families and perhaps the basis of small communities.

► **References**

Wyoming State Geological Survey  
P.O. Box 1347  
Laramie, WY 82073  
Ph: (307) 766-2286 | Fax: (307) 766-2605  
Email: wsgs-info@wyo.gov

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