

## ARCHAEOLOGY

## Dust Storm Rising Over Threat to Famed Rock Art in Utah

For more than 1000 years, geometrical human figures, animals, and abstract designs have graced the sandstone walls of Nine Mile Canyon in central Utah. Considered one of the premier rock art sites in North America, the canyon holds at least 10,000 images pecked and painted by the mysterious Fremont and later the Ute Indians.

Now a much-anticipated study just submitted to the U.S. Bureau of Land Management (BLM) warns that truck traffic from nearby oil and gas operations could be fading the splendor of the world-renowned rock art. “The results of my study are very alarming,” says report author Constance Silver, an art conservator with Preservar Inc. in Brattleboro, Vermont.

The report, due to be released in a week or two as part of an Environmental Impact Statement (EIS) on expanding oil and gas operations in the canyon, is likely to kick up a furious dust storm of its own. BLM managers say they are not convinced that the current operations are causing serious damage. “Obviously, the dust is having an impact on the visual clarity of the rock art. But whether the dust is having a [lasting] impact is open to question,” says archaeologist Julie Howard of BLM in Salt Lake City.

Big 18-wheel rigs have been rumbling through Nine Mile Canyon since 2004, when BLM gave energy companies the go-ahead to drill for natural gas higher up in the plateau. The decision had outraged some archaeologists because the art sits just adjacent to the canyon’s main, coarsely graded road.

Silver’s report is the first to study the effects of the traffic and the dust it creates. One of

the few conservators who specializes in rock art, she was commissioned by BLM officials in Utah last year to assess the impacts. She worked in the canyon last April, recording the amount of particles in the air before and after trucks passed by. She also collected particulate samples in heavily trafficked areas and in sparsely visited side canyons (for control). She completed her report late last year and described her results to *Science* earlier this month.

Ironically, Silver found that the chief danger comes from an effort by the Bill Barrett Corp. and other energy companies that use the road to suppress dust: They have repeatedly applied magnesium chloride to the dirt road. This salt damps dust by pulling moisture out of the air. But Silver says the chemical is

“flying all over the place” along the edges of the road and settling on the pictographs: “You can see the deposition taking place” on the art.

Magnesium chloride is “vicious stuff,” says Silver. “It peels concrete.” Over time, she says, the salt will corrode the rock and damage the paintings on its surface.

But BLM managers familiar with Silver’s study were hesitant about its conclusions. “Nine Mile is very controversial,” says Roger Bankert, BLM field manager in the Price, Utah, office, who helped draft the soon-to-be-released EIS. “There could be extremist views on both sides. Some say there’s a lot of damage, and some say there’s no damage.” Bankert suggested that additional analyses might be in the works. “We could have other specialists disagree with [Silver’s report],” he said.

The use of magnesium chloride in Nine Mile Canyon as a dust suppressant has been “a concern for a long time” among some BLM staffers, says Dennis Willis, a BLM recreational planner in the Price office; some are also concerned that the salt is contaminating the canyon’s stream. Although Silver’s is the first study to suggest a magnesium chloride problem in Nine Mile, existing data suggest that the compound, also used as a road deicer, is a corrosive agent. Bankert points out that Carbon County supervises the use of the road, and county officials, not BLM, approved the magnesium chloride use.

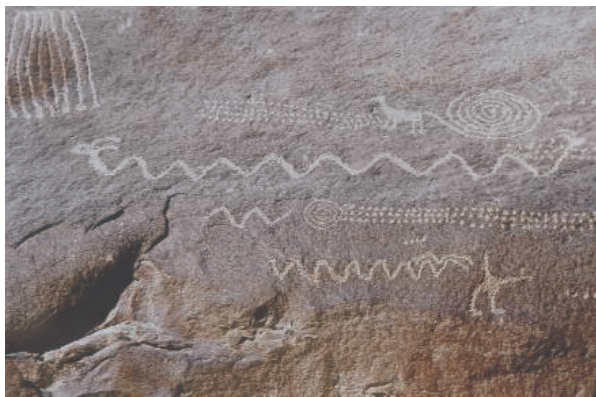
Scientists familiar with the level of truck traffic on the canyon road say they are not surprised by Silver’s findings. “The fact that the dust is being kicked up on the rock art panels is apparent to anyone who goes down there,” says Kevin Jones, Utah’s state archaeologist.

Some experts say it is inevitable that the dust buildup will cause damage. “Think of a painting in your house that is placed over a fireplace that produces soot,” says chemist Marvin Rowe of Texas A&M University in College Station, who works on dating rock art. “Over time, that soot gets incorporated into the mineral content of the painting, and it builds a thick enough coating where it makes the painting fade away.”

One option might be to wash the art, although some experts fear damage from washing, too. Silver predicts some action will be taken: “They’re really going to have to do something about the road and clean up those sites.”

—KEITH KLOOR

Keith Kloor is a senior editor at *Audubon Magazine*.



**Obscured.** Once-vivid rock art panels like this one of a two-headed snake in Nine Mile Canyon (top) are shrouded by dust in 2006.