Fuel Reduction Protects Mesa Verde National Park

Close to the four corners region of southwestern Colorado, an 8,000-foot-high mesa is home to Pueblo ancestral dwellings that have lined the canyon alcoves for more than 800 years.

From a distance, the largest stone complex, Cliff Palace, resembles a ruined fortress of towers, ramparts and windows lodged inside a massive oval cavern. Considered a masterpiece of architectural ingenuity with its plazas, 150 rooms and 21 ceremonial areas, Cliff Palace continues to evoke a mystical and mystifying aura for the 650,000 annual visitors to Mesa Verde National Park.

The park, until recently, was also home to the oldest and largest piñon-juniper forest in the nation, with some of the trees dating back 500 years. That was before lightning strikes in 1996 and 2000 started several catastrophic fires that torched 30,000 acres and threatened the existence of Cliff Palace and dozens of other dwelling sites.

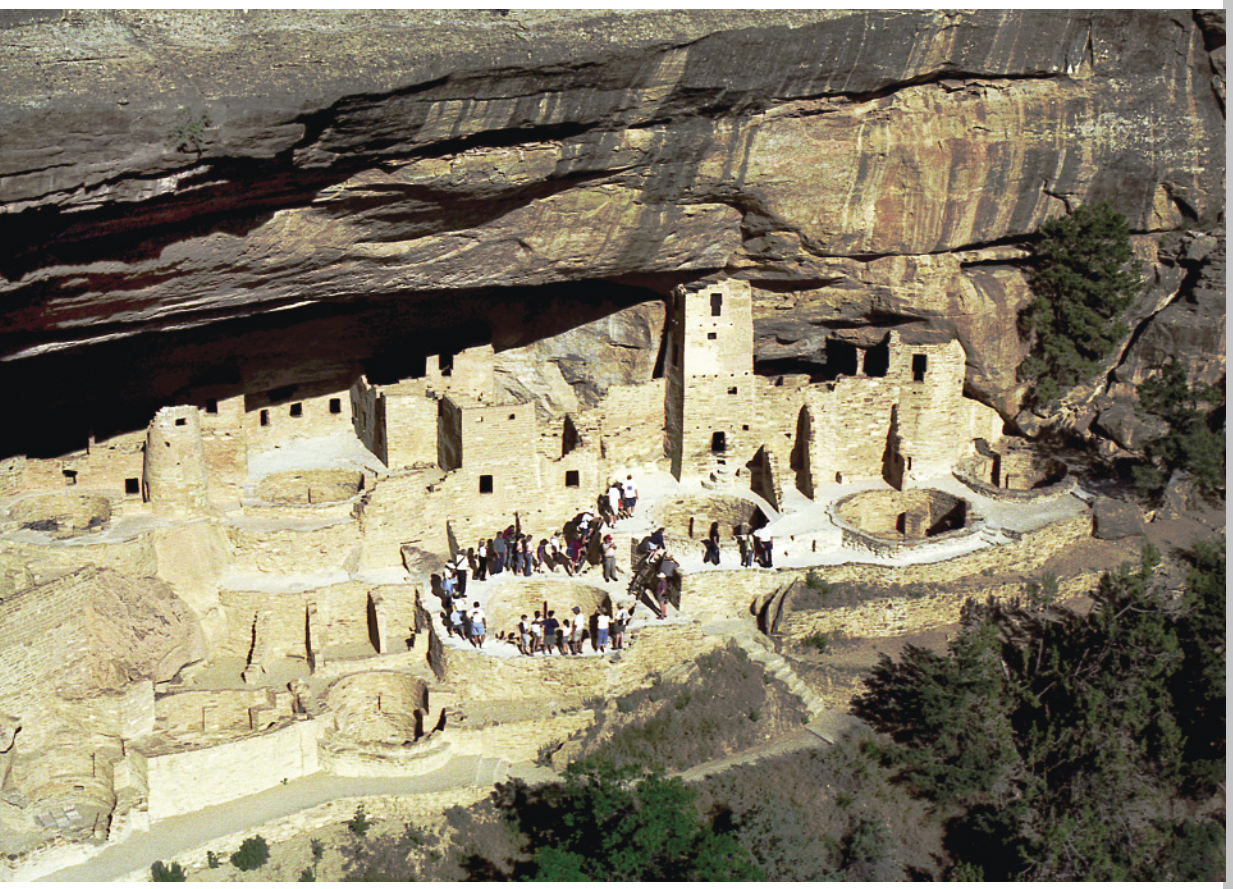
When a lightning bolt struck again in late July 2002, in the midst of the worst drought in 100 years, the park's historic headquarters, museum and staff accommodations faced the same fate as the incinerated piñon-junipers.

But rather than wait for the expected showdown, Mesa Verde had begun a fuel reduction project 10 years earlier that would pay big dividends.

Catastrophic fire long overdue

"This was the fire we've feared for more than 30 years," said Tim Oliverius, who was Mesa Verde National Park's fire rehabilitation manager from 1990 to 2001.

With only one route leading in and out of the park, the wooded area alongside the road could have turned deadly if the park hadn't been evacuated in time. As it was, the scruffy



Cliff Palace ruins

Larry Wiese, superintendent of Mesa Verde National Park

piñon-juniper forest became a skeletal graveyard of charred trees.

According to Oliverius, it was inevitable that 100 years of fire suppression would create a catastrophic firestorm. The park puts out dozens of fires a year, many of them started by lightning strikes. Since the 1930s, more than 800 fires have started, with most confined to less than an acre. The scorched piñon-juniper trees were now a "decadent forest," meaning it housed a lot of downed wood — 15 to 18 tons of dead fuels per acre.

"With that kind of suppression and dead fuel, the forest was long overdue to burn. It probably reached its peak 50 years ago," Oliverius said.

When Oliverius joined the park staff, he spearheaded an aggressive response to the looming threat. He started building a buffer of defensible space in 1992 with a fuel reduction plan that would manually thin out 159 acres around the park's 70 structures and a dozen cliff dwellings, including Cliff Palace.

The goal of the long-term fuel reduction project was to create a 20-foot space between each mature fuel tree crown area. By doing this in advance of a fire, the strategy was designed to lower fire intensity and allow flames to drop to the ground where they are much easier to control. All of the recorded large fires in the park's history have been high-intensity crown fires.

By creating a 12-acre safety zone near the headquarters area, park managers would ensure firefighter, employee and visitor safety in the event of a road closure or fire evacuation. The safety zone would also provide firefighters with an area they could retreat to during dangerous activity.

While at the time piñon-junipers made up only half the trees in the park, they were associated with 94 percent of the fires. "Piñon-junipers burn with such intense heat that firefighters can't make frontal attacks on them in a windstorm," Oliverius said.

Out of 52,000 acres, Oliverius's plan called for thinning only 159 acres around staff housing, the most famous cliff dwellings and the park's administrative buildings. Yet his proposal sparked statewide concern, with the most vocal opposition coming from coworkers who wanted to save the piñon-junipers.

"I wouldn't say they hated me, but I definitely wasn't well liked," Oliverius admitted, adding that he had initially thought the strongest resistance to the program would come from outside the park.

Even though Oliverius had support from the park superintendent, staff that lived in the housing area with Oliverius enjoyed the lavish though highly flammable piñon-junipers, particularly the privacy and shading they provided for the picturesque cottages. The park's defensible space plan recommended the mechanical removal of 170 trees within the housing area.

"When you talk about cutting down a tree, that's when the emotions come out," said Larry Wiese, superintendent of Mesa Verde National Park. "As a national park our mandate is clear. We're about protecting and preserving the nation's resources. When you

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Some of the park staff were so upset that a petition was circulated to stop the removal of the trees. Oliverius understood his coworkers' perspective.

"You don't see piñon-junipers like we have here. This is world-class. There was a loud outcry," he said. In order to reconcile differing opinions on how much to reduce the vegetation, numerous meetings were held and compromises reached. One of those compromises involved sparing trees that maintained "aesthetics and unique characteristics"—like rare or record trees.

The only environmental group to support the reduction project was the National Parks and Conservation Association.

According to Oliverius, "The group did not physically sign off on the plan, but its regional representative came to the park and verbally endorsed the fuel reduction plan after reviewing the fuel reduction work on site and evaluating the purpose and necessity of the project."

Some other environmental organizations, however, opposed the plan, and once the news media caught wind of the fuel reduction program they tended to side with environmentalists on the controversial debate. In 1995, *The Denver Post* challenged the legality of the program, criticizing Oliverius' plan as "poorly thought-out" and writing that the project "looks like hell."

Indeed, after the fuel reduction was completed around the housing area, the once lush grove that surrounded the row of charming cottages resembled a minimalist landscape.

Oliverius stressed that the crowning space between treetops was only 20 feet, as opposed to the 40 feet that many mitigation specialists were advising was necessary to ensure 100 percent fire protection. More trees could have been taken out, but the park responded to public and staff input.

This cottage in Mesa Verde National Park survived the Long Mesa Fire which burned the hillside behind it

"It's important that we continue the fuel reduction program or face another catastrophic fire."

— Larry Wiese

It took the catastrophic fires in 1996 and 2000 to begin convincing park staff and environmental organizations that the fuel reduction plan was a sound idea. Those fires burned more than half of Mesa Verde's acreage, though they stayed clear of the park's major structures and cliff dwellings.

The park continued with the tedious and labor-intensive mechanical reduction of trees. Crews had to do most of the thinning with chainsaws as opposed to prescribed burnings in order to preserve prehistoric sites that may be buried under the forests.

"Toward the end of our project in 2001, it was costing $4,000 an acre," said Oliverius. "It all had to be done by hand. We didn't use any machinery except chainsaws. Everything had to be carried out of the woods, put in a truck, hauled in one area and burned in the winter time."

The replacement of the cottages' wood-shake roofs was another battle for the ranger, since the park cottages where the staff lived were on the National Register of Historic Places.

"Historical architects at first refused to agree with the asphalt roofs, saying that an asphalt roof would breach the integrity of the structure," Oliverius recalled. "We were able to obtain asphalt imitation wood-shake style shingles and got those roofs put on in the nick of time."

Fuel reduction makes difference

In July 2002, the plan paid off.

"Because of where it was situated, the fire came blowing right through the park, the worst place we could have had a fire," said Scott McDermid, who served as a task force leader fighting the Long Mesa Fire. "In the remote part of the park flame lengths were 100 feet high. As soon as the fire hit the staff housing area, the flames dropped to 15 feet, and they continued to drop.

"The reduction area made all the difference. Had that not been there, we would have lost every building. There would have been no safety zone, no place to make a stand and all the fire crews would have had to leave."

Oliverius said that more than 60 structures, including staff housing and the museum, were spared. "What stopped the blaze was that it went from 40 tons per acre of fuel to 15 tons per acre," he explained.

The initial cost for the 159-acre project was estimated at $250,000 but eventually grew to $400,000, which was still a bargain to Oliverius.

"If we hadn't done the fuel reduction project we would have lost all the structures, which are worth more than $12 million, and almost all of them are on the National Register of Historic Places," he said. The cost of losing the cliff dwellings would have been incalculable.

The Long Mesa Fire had in fact nicked at the top of the Spruce Tree House cliff dwelling located near the park's headquarters and scorched the canyon below it. Red slurry dusted the sandstone surrounding one of the park's most visited cliff sites.

"The fire would have done damage to the dwellings if it had gotten to them," said Superintendent Wiese. "There is wood built into the dwellings and there is also the problem of erosion."

Wiese knew the park's reduction program was a success, just based on the fact

Progress of the Long Mesa Fire



the buildings were still standing after the fire was contained. But he wasn't prepared for the overwhelming visual confirmation from a helicopter as he assessed the damage.

"Every place we thinned, there was green and everywhere we hadn't thinned it was black," he said. "So when you look at the burned area from the air, you saw islands of green in a black ocean."

Wiese said his staff is now working on a fire management plan for the entire mesa.

"Only 40 to 50 percent of the park has burned," he explained. "There are plenty of acres left, including 100,000 acres of land adjacent to the park on the mesa that belongs to the Ute Mountain Ute Tribe. We're going to solicit public input and ideas from people on the boundaries of the park. It's important that we continue the fuel reduction program or face another catastrophic fire."

As for Oliverius, he became acting fire management officer at Indiana Dunes National Lakeshore. When asked why he stayed with his fuel reduction plan in the face of such considerable opposition, he was typically no-nonsense.

"It was staring me right in the face," he said. "There are a lot of gray areas, but this was a black and white issue. It wasn't going to go away."

He also took away from the experience a number of important lessons, including the values of patience and persistence.

"The project at times was frustrating and didn't go as fast as expected," Oliverius said. "We had success in small increments. Sometimes we only cleared six or eight acres a year, and never more than 20 acres in a year. I just learned to measure our success in small increments and to not let it get me down.

"You're never going to change everyone's opinion. But you have to proceed in what you believe is right."

One tourist, visiting the park after it reopened in August 2002, described the wildfire's devastation as "sad." Oliverius had a different point of view.

"I don't think of the fire as 'sad,'" he said. "It's actually kind of exciting. Coming back in future years, we can watch the forest recover. It's nature's way of rejuvenating the land." ■

Park buildings surrounded by burned piñon-juniper forest