

# A Community Unites

*Glenwood Springs manages post-fire flood risks*

AS SNOW FELL IN LATE OCTOBER 2002 on this quaint mountain resort community on the Colorado River, more than 250 residents along the Mitchell Creek corridor breathed a collective sigh of relief. For the first time in months, the moisture falling on slopes denuded by the Coal Seam Fire did not pose a major flooding risk.

“It’s been a long year,” said Lee Bowles, mother of two and a resident of the high-risk Mitchell Creek area on the west side of Glenwood Springs. “Since the fire you constantly watch the skies, and rush home every time it looks a little dark. Living under the constant threat, it wears on you.”

Residents were evacuated a half dozen times during the summer of 2002. Some of the evacuations turned out to be false alarms, but other storms filled streams, gullies and roads with chocolate-brown debris. On two occasions, floodwaters inundated basements, blocked roads and damaged vehicles.

The Coal Seam Fire started on June 8, 2002, when a coal seam burning underground for nearly a century ignited vegetation in South Canyon just west of town. Fanned by

intense winds and record drought conditions, the volatile blaze jumped the Colorado River and Interstate 70, threatened thousands of homes and businesses, damaged or destroyed more than 30 structures, and scorched more than 12,000 acres of public and private land.

But before the fire was even put out and damage statistics tallied, Glenwood Springs residents were preparing for a post-fire aftermath of flooding and the related ash, debris and mudflows.

“It became real apparent that this fire was a repeat episode of Storm King,” said Garfield County Sheriff Tom Dalessandri, referring to the deadly July 1994 blaze and the 10-foot mudflows that closed Interstate 70 shortly thereafter. “We knew that we’d experience at least some effects of mud and water, so just a few days into the fire we started planning.”

## The mud/flood team

“We don’t rely on any one system.”

— Andrea Holland-Sears, BAER team hydrologist

Local residents and government officials put a disaster task force together to help mitigate flood risks to 120 residential properties in areas left most vulnerable after the Coal Seam Fire. The structures in harm’s way were an eclectic combination of properties that included a mobile home park, a fish hatchery, a ranch and million-dollar houses that snaked alongside Mitchell Creek on the west side of town.

The Mud/Flood Task Force met weekly throughout the summer to discuss issues, share resources and ensure that response and recovery efforts were well coordinated. During a roundtable discussion in late September 2002, several members of the group gave invaluable advice to communities that might one day face similar post-fire flood threats.

Dalessandri said that a Burned Area Emergency Rehabilitation (BAER) team provided crucial information regarding post-fire effects and how to keep homes and lives safe from flooding. Brought in by the U.S. Forest

Residents of West Glenwood evacuate beneath an afternoon sun dimmed by smoke from the advancing Coal Seam Fire



Service and the Bureau of Land Management, the BAER team was composed of highly skilled soil scientists, geologists, ecologists, engineers, foresters, botanists and other specialists trained to assess damage caused by fire.

The team suggested numerous post-fire emergency management and mitigation strategies for Glenwood Springs, including additional weather monitoring equipment, resident weather-spotters, localized treatment of denuded slopes, apparatus to channel anticipated mudflows away from improved property, advance-warning systems, evacuation procedures and meeting points that would allow local emergency managers to account for area residents.

The early-warning system that was installed on the mountainsides above Mitchell Creek was comprised of three computerized sensors to measure rainfall. The sensors were programmed to alert authorities if they reported rain quantities capable of producing a “land movement event.”

Members of the BAER team also recommended that the Mud/Flood Task Force not rely completely on the early warning system.

Andrea Holland-Sears, a hydrologist for the BAER team and a member of the task force, said, “The early warning system is a tool, not the only one in place. We don’t rely on any one system. We have other resources, such as the community, to depend on.”

Those community resources included people from a variety of backgrounds who worked with officials on evacuation plans for the community. The task force was made up of emergency response personnel, information officers, natural resource specialists, non-profit organizations, government administrators, dispatchers and private citizens.

### Egos checked at the door

“That sense of community has to be there before people can be willing to come together.”

— *Bill Kight, U.S. Forest Service*

The first meeting of the Mud/Flood Task Force was facilitated to encourage the com-



Remains of a house in West Glenwood

munication that would be critical to the group’s success.

“I can’t emphasize how important it was for all departments to knock down the barriers and start communicating freely,” Holland-Sears said. “We couldn’t have set up that early warning system as successfully as we had without understanding how the law enforcement radio system operated.

“As a hydrologist, I normally don’t even know how radios work, but working with the Glenwood Springs police, we were able to solve a lot of problems that we wouldn’t even had found out until after the first event.”

Bill Kight of the U.S. Forest Service said that community members pitched in above and beyond the call of duty.

“That sense of community has to be there before people can be willing to come together and lay down their territorial problems and their egos and say, ‘We need to address this situation,’” he said.

Kight cited the placement of jersey barriers along Mitchell Creek as an example of cooperation among multiple jurisdictions. “Putting in the jersey barriers happened really fast,” he said. “I think the BAER team was even surprised at how quickly some of the things happened.

The Natural Resources Conservation Service (NRCS) emerged as a key task force partner, implementing communitywide flood mitigation strategies. Since NRCS has more latitude than most federal agencies to perform



A burned house along Mitchell Creek

work on private land, it made sense for the group to coordinate those efforts.

Going door-to-door, Dennis Davidson from NRCS gathered the approvals that were necessary before the work of lowering the flood potential throughout the Mitchell Creek corridor could begin.

Together with the Colorado Department of Transportation and the county road and bridge department, NRCS cleaned debris from streambeds to prevent culvert blockages, placed hundreds of concrete jersey barriers to channel anticipated debris flows and helped with sandbags around the homes at greatest risk.

“Our first real work was to get the jersey barriers into place,” Davidson said. “We put in 625 barriers stretching 6,000 feet along the creek and other vulnerable areas.” Mitigation efforts also included the removal of debris from Mitchell Creek itself, filling a total of 54 dump trucks.

“Under the water protection program, we were able to secure emergency funding from the Bureau of Land Management and begin work that was considered ‘urgent and compelling’ within a few hours of the fire,” Davidson explained. The county also released \$100,000 in emergency funding within the first week of the fires to address flooding risks.

“We had three storms in August that produced debris, filling up driveways,” Davidson added. “I’m certain homes would have flooded without these barriers.”

### Managing expectations

“We can’t guarantee your safety. You have to guarantee your own safety.”

— Garfield County Sheriff Tom Dalessandri

According to Dalessandri, one of the major challenges was setting a tone for the recovery that gave residents realistic expectations for the risks they faced without being alarmist. Though residents grew weary of the evacuation alerts, Dalessandri and his staff felt a responsibility to warn people of potential hazards.

“We proved that the best information is real information,” Dalessandri said. “We were very careful what we told people, but we didn’t withhold information. We were very sensitive to their needs, but at the same time we were very frank about everything. We didn’t sugarcoat our answers. We made it clear to people what was available and what was not.

“That honesty paid off in the long run,” Dalessandri added. “Though people may be frustrated or tired from this long ordeal, they’re still believing that there’s credibility in what we have to say.”

The goal was to avoid unrealistic expectations by letting residents know the extent to which government could help them, and the ways in which residents could help themselves by taking responsibility for their own welfare.

“Communication is the key, I think, that made it possible for all of us to work together better and keep that level of trust,” Kight said. “You don’t make promises you can’t keep.”

But finding ways to reach the 8,000 residents in Glenwood Springs with accurate and timely information remained an issue. One of the solutions involved using a resource center to field questions from the community, which Dalessandri knew had been effective in the aftermath of the 9-11 terrorist attacks.

“When the Coal Seam Fire erupted, we moved our resource center from the county building and relocated it to the high school because there was need for ample parking,” he said. “We filtered news to the center and

*“I didn’t even know I had a gully behind my home until after the fire. The brush was so thick you couldn’t see it.”*

— Victor Gabossi

we disciplined ourselves to make sure the information got to the public affairs people.”

Dalessandri and his colleagues also attended numerous community meetings and led residents on tours of neighborhoods damaged by fire or flood. Information regarding evacuation procedures and disaster mitigation measures was made available in both English and Spanish.

The task force even got into the publishing business, starting its own bilingual newspaper, *The Mud/Flood Gazette*, which was distributed throughout town.

Ron Vanmeter, public information officer for the Garfield County Sheriff’s Office, said that the experience taught him a simple truth. “We’ve learned that people’s need for updated and current information is crucial,” he said. “Once the public is given just the facts, then it’s a matter of time and trust.”

### Teamwork pays off

“This is how government is supposed to work.”

— Victor Gabossi, Glenwood Springs homeowner

Victor Gabossi is fairly confident that his house will survive the next firestorm. In addition to the fuel loads taken out on the hillside during the Coal Seam Fire, Gabossi replaced his wooden roof with asphalt shingles. He even built a rock wall and a wide concrete driveway to serve as firebreak between the hill and his home.

By late September 2002, the Glenwood Springs resident was more worried about losing his home to a mudslide.

“I think we’re going to have some major storms before the vegetation grows back,” he said, as he looked up at a group of volunteers reseeding the hill behind his home. More than 70 volunteers from all over Colorado assisted in the restoration project to help prevent future mudflows.

Gabossi pointed up the barren hillside to an earthen berm behind his home.

“I didn’t even know I had a gully behind my home until after the fire,” he said. “The brush was so thick you couldn’t see it. After a foot of mud covered my front yard, I talked to Dennis Davidson from NRCS and he



Jersey barriers protect a farm near Mitchell Creek

came out and made sure that berm was high enough to divert the water away from my home.

“I think among the local officials, the county commissioners and NRCS, it’s been great teamwork, Gabossi added. “This is how government is supposed to work.”

Dalessandri attributed the generally harmonious interagency cooperation to two factors: no single agency had sufficient resources to manage the problem on its own, and local, state and federal agencies each had a unique role to play in the recovery.

Even funding responsibilities were shared. Although the total cost of the mitigation efforts reached \$5 million, Dalessandri said help from state and federal agencies allowed the county to absorb costs within its regular budget.

Emergency managers freely acknowledged one other critical part of their success — luck. Glenwood Springs was spared the monsoon downpours that hit Durango in southern Colorado and caused massive mudflows.

“Each rainstorm we had moved debris in increments, rather than all at once,” Holland-Sears said. “I have to keep reminding folks that slope stabilization efforts are effective only to a point. Very large rain events can overwhelm even the best designed mitigation measure.”

In Durango, where the Missionary Ridge Fire consumed more than 70,000 acres in June 2002, dozens of homes and businesses were damaged when August monsoon rains brought major mudflows — despite strategic efforts to protect properties from flooding.

The terrain was too steep and the rains were heavier than those in Glenwood Springs, according to NRCS District Conservationist Dan Lynn. “We had to encourage one Durango family to leave their newly built home,” he said. “There was just no way we could protect them.”

### *A roadmap for action*

“Based on our mitigation strategies, we definitely saved homes and we may have saved lives.”

—*Sheriff Dalessandri*

The concrete barriers remained in place along Mitchell Creek well into 2003, a reminder to nearby residents that post-fire threats would likely be long lasting. Dalessandri, for one, was already looking ahead and planning his community’s response to future disaster events.

Thanks to his experiences in the summer of 2002, he had developed a roadmap for action: establish pre-designated command posts and staging areas; pre-deploy basic equipment such as laptop computers, radios and cell phones; share emergency contact information; set-up procedures for accessing supplies, such as water or ice; and develop strategies for demobilizing as the incident subsides.

According to Dalessandri, all these things may be easily overlooked during day-to-day operations but are vital during an emergency. And perhaps the most crucial element to an effective disaster operation, he said, is ensuring that everyone is on the same page “with the same mission in mind, the same agenda and the same priorities to help victims.”

Dalessandri felt certain that the coordinated efforts among emergency responders did make a meaningful difference to the Glenwood Springs community and its residents.

“Based on our mitigation strategies, we definitely saved homes and we may have saved lives,” he said. “How many? It’s hard to say. But the work is in place so we can ensure that we have given our best effort to prevent any significant loss — be it person or property. With that perspective, we can declare it a success.

“This project has been a classic example of how federal, state and local government can work well together.” ■