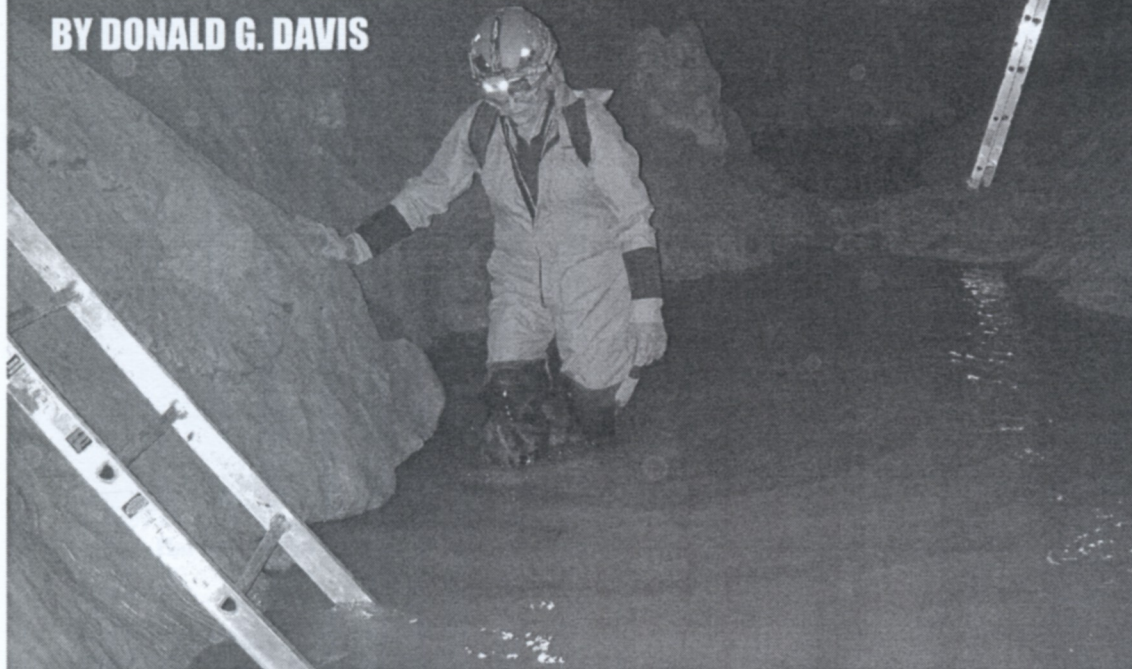


# Water Returns To Fort Stanton Cave

BY DONALD G. DAVIS



**F**ort Stanton Cave, New Mexico, has a long history of alternating flooded and dry conditions along the Main Corridor. Historic reports as early as 1877 refer to flowing water in the cave, and from the 1960s onward, reports in *Southwestern Cavers* and other newsletters of organized cavers mention the presence of water in some years. The peak year seems to have been 1987, when water had backed up nearly to the entrance, and raft trips, with participants using life jackets, were made through much of the deeply-flooded passage.

In general, flowing water could be expected in the cave when the nearby Rio Bonito was flowing. However, from about 1990 through 2005, comparatively dry weather conditions prevailed in the Fort Stanton region, the Bonito flowed only rarely, and water disappeared from the cave. Government Spring—the presumed outlet of the cave flow—became reduced to a seep.

In 2001, there was a major extension in Fort Stanton Cave when the Priority 7 dig broke through into Snowy River, a large gallery with a unique calcite-lined channel running along it. Exploration was delayed for two years for Bureau of Land Management administrative reasons, but in 2003 three miles of new cave were mapped. The end of survey in the southern branch was in an ongoing passage two feet high by 25 wide, with airflow estimated at sev-

eral mph, deep beneath the overlying ridge. Survey of the northern branch ended at a surprise: despite the absence of water elsewhere in the cave during the preceding decade, the explorers found a small stream, which they named Crystal Creek, issuing from a bedding plane and flowing into continuing passage where Snowy River North approaches the Bonito valley.

Because the discovery route for Snowy River had been dug through several hundred feet of unstable breakdown, visits to it were suspended by the Bureau of Land Management managers after 2003. The Fort Stanton Project cavers had been asked to dig a new connection, to be shorter and safer, from Don Sawyer Memorial Hall into the Mud Turtle tributary of Snowy River. This was begun in October 2005.

The second DSMH dig trip took place in April/May 2006. Up until this time, very dry weather had continued. But during this expedition, heavy rain moved in, and the Bonito began to flow. For the next year, much rain kept falling. In October 2006, the blue grama grass around Fort Stanton was lusher than I had seen it in the 46 years I had been visiting the cave, and was everywhere two feet high. But still no flowing water had appeared inside FSC.

The winter of 2006-2007 continued fairly wet, and the Bonito kept flowing. Through

the winter, no cave trips were made because of the seasonal closure of the cave for hibernating bat protection. But the first visit of 2007—an April 14 administrative trip to change gate locks in the cave—found flowing water in the channel below Inscription Rock, several hundred feet past the Twenty Steps junction in the Main Corridor. This was the first running water reported in FSC in more than ten years. The yearlong increased precipitation had finally been manifested in the cave. BLM informed John Corcoran, who was planning the next digging expedition for April 28-May 6, 2007. The diggers who registered were advised to prepare for wading.

During that expedition, there were several rainstorms, the Bonito was still flowing, and the cave inflow was found to be continuing. The water seemed to be coming in somewhere indefinite in the meander niches undercutting the west wall upstream from Inscription Rock, and forming ponds 6 to 10 inches deep from there for some hundreds of feet downstream. In two or three places, there were spillovers descending a few inches down clay slopes. Steve Peerman estimated the flow to be 10-11 gallons per minute at these places. As the passage approached the Skyscraper Domes junction, the water was found to be ponding more deeply, but 16-inch rubber boots were sufficient to keep one's feet dry, with about four inches of clearance along the best route.

Unfortunately, the Main Corridor trend does not slope continuously downward toward the Bonito. The low point is in Fool's Crawl, beyond the Skyscraper Domes junction, where the Sewer Pipe passage narrows before opening back up into Snowflake Passage which goes gradually upslope again. The end of Snowflake plots about 35 feet higher

Photo:

**Jacqui Thomas wades her way through knee-deep ponded water in Fort Stanton Cave's Main Corridor at the junction to the lower-level Sewer Pipe.**

Photograph by Steve Peerman

than the Fool's Crawl low point. Even if there is a drain less high than that, the water can rise many more feet if inflow proceeds. Fool's Crawl must already have been sumped in late April.

During the first week of the April/May expedition, the water at Skyscraper Junction rose about two inches. The Southwestern Regional gathering was held at Fort Stanton Cave over the Memorial Day weekend three weeks later, when the water at the same place was found to be about knee-deep—some six inches higher than in early May—and confirming a continued rise of two inches per week. A new measurement by Steve Peerman indicated the waterflow to be approximately 2.4 cubic feet per minute, or about 18 gallons each minute. It was uncertain if the water flow had increased in the month since the last expedition, or had previously been underestimated. If there is no change during the next five weeks before the planned 4th of July digging expedition, the level then may be expected to be ten inches higher still—some 30 inches deep.

This will pose considerable inconvenience to the July digging teams. The deeper the lake becomes, the more difficult it is to move along and see one's footing. During the April/May expedition, we also noticed that the mud over the passes where travelers must go above the water level got steadily more slippery, as water ran onto it off boots and clothing when we climbed out of the lake segments. All of this increases the effort and hazard in moving digging and shaft-shoring supplies through the cave. By July, hip waders will probably be needed to get through that section dry. If it later gets deep enough that foot travel becomes impractical or impossible, use of rafts may need to be considered. However, this too would be complicated, because the lake segments will still be discontinuous, with higher ground between, and probably some narrow channels. This may make multiple rafts or portaging necessary, with boarding and disembarking often awkward.

During the April/May expedition, two separate teams field-measured the flow of Government Spring, which had resumed vigorous outflow. Approximate discharge of 1.8 to 1.9 cubic feet per second was indicated. On May 30, another team's measurements suggested that the flow had gone up to about 9 cfs! Of course, these large discharge levels can't be coming from the relatively slight flow seen in the Main Corridor; it would be very interesting to learn whether most of this water discharging at Government Spring is coming



**Government Spring along the Rio Bonito is the resurgence for water flowing from Fort Stanton Cave. In recent years, it has been a seep, but following rains in 2006 and 2007, it has grown to a healthy flow of water. Here, Donald G. Davis takes the temperature of the resurging water.**

Photograph by Wayne Walker

from the Crystal Creek spring in Snowy River North.

Our worst nightmare is that we will break through into Mud Turtle during the July expedition, only to find that water has also reappeared in the Snowy River channel. Water in Snowy River would probably not be spillover from the Main Corridor—if that had happened in the past, there would most likely be a plume of mud stain running down Snowy River from the Mud Turtle junction. However, Victor Polyak has obtained a U-series date of only 152 plus or minus 51 years on a calcite sample from the Snowy River channel surface. This suggests that Snowy River, whatever its ultimate source, has been dormant, not extinct, and could flow again if the source becomes active. That would probably prohibit further exploration while it lasted. To traverse Snowy River, it is necessary to walk in

the channel, but wading through water there would slosh waves onto the muddy shore, which in turn would tend to dislodge mud down onto the pristine white calcite. Furthermore, at least two low sections in Snowy River South could either sump, or nearly so, if flooded.

However, if we are lucky, the Snowy River source will prove to be more remote and/or diffuse, and slower to respond to wet cycles, than the Main Corridor, so Snowy River South may be found still dry when next visited. In either case, we expect to learn something of interest about the cave's hydrology when we enter the Snowy River section again.

**Editor's Note:** On July 1, 2007 teams reached Snowy River from the Don Sawyer Hall excavated shaft and found the corridor to be flooded with slowly-moving water, flowing about a foot in three seconds, according to Donald Davis. ■