Accent

"Almost all the traditional life was dead, and the mud and ash were everywhere."
— Jim Sedell (story below)

On May 18, 1980, Mount St. Helens erupted in a horizontal blast, releasing a cloud of steam and gases that leveled every living thing in its path. A decade later, streams and landscape show signs the area is coming

BACK TO LIFE

Norm Anderson/OSU Department of Entomology
An aerial view of Clearwater Creek in January 1981 shows a valley ravaged by Mount St. Helens' eruption, and subsequent flooding and erosion.

Explosion was waiting to happen

By Mark Floyd
OSU News Service

The eruption of Mount St. Helens on May 18, 1980, didn't exactly catch scientists by surprise — in fact, they were watching for it.

But no one expected an eruption so violent, or so damaging, that it would rip away half of one of the most scenic mountains in the Pacific Northwest, said Edward Taylor, a geologist at Oregon State University.

An expert on the volcanic history of the Cascade Range, Taylor said the St. Helens eruption was unusual in many respects.

"First of all, it is not on a north-south line with other Cascade volcanoes," Taylor said. "It is markedly to the west. And it's a baby in comparison with other Cascade peaks. It only goes back 4,000 years, so in a sense it is just getting started."

Events leading up to the eruption were also unusual, Taylor added. In the months preceding the blast, magma had slowly worked its way up through the crust into the heart of the volcano. As the magma heated up the inside of the mountain, it created steam which blew out the crater in March of 1980.

Scientists received their first clue that something extraordi-

By David Stauth
OSU News Service

Dressed in a full-body wet suit to protect himself from the icy cold of the stream, a young man last summer carefully paddled his way through the rotting logs and other tangled debris of Clearwater Creek, about five miles from Mount St. Helens.

Until the past few years, Clearwater Creek had been anything but clear. In the summer of 1980, the explosion of Mount St. Helens had left it a ravaged, wounded stream with few signs of conventional aquatic life. The trees that once provided shade and nourishment had been knocked down like matchsticks. The stream banks, once green and thick with moss, lay buried under mud and volcanic ash.

The fish were dead. All of them.

But now, conducting research for Oregon State University and the U.S. Forest Service in the summer of 1989, field technician Bruce Hansen was finding the type of life that can make mountain streams so special. He came to one little pool, raised his snorkel out of the water and yelled, "three cutthroat, 8, 10, and 12."

An assistant made notes in a book about the healthy young trout.

Braving the cauldron

"I still remember the first time we came to the mountain after the big blast," said ecologist Jim Sedell. "I remember the day well. Because of the continuing danger of another eruption, we had to have a helicopter hovering above us at all times. And because of the short amount of time we had to work, we did a lot of foolish things."

Among those things, Sedell said, was jumping into the reeking cauldron of Spirit Lake to obtain samples. According to Sedell, an associate professor of fisheries and wildlife at OSU and a research ecologist with the U.S. Forest Service, it was not a great place to swim.

The water was choked with exploded trees, mud and ash. Gases such as methane and carbon dioxide bubbled up through the smelly brew.

From a biological perspective, the water was anything but sterile. Anaerobic bacteria that fed on nitrates and disdained oxygen could thrive in such noxious conditions, and they permeated the lake — about a billion bacteria in each milliliter, or one-quarter teaspoon, of water.

"I'd never seen anything like it," Sedell said. "It was a whole different world. Almost all the traditional life was dead, and the mud and ash were everywhere."

Ecologists such as Sedell, and those from other universities or government agencies, realized they had a research gold mine. It was a chance to study the natural recovery processes in an area where traditional life forms had been virtually wiped out.

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Events leading up to the eruption were also unusual, Taylor added. In the months preceding the blast, magma had slowly worked its way up through the crust into the heart of the volcano. As the magma heated up the inside of the mountain, it created steam which blew out the crater in March of 1980.

Scientists received their first clue that something extraordinary might happen as the magma "actually caused the mountain to enlarge," Taylor said.

The north and northwest slopes began to swell. As the "dome" continued to grow, said Taylor, it moved a sizeable section of the mountain out. The walls became too steep, making a landslide inevitable.

"But nobody quite imagined how this would take place," Taylor said. "As the mountain continued to swell it became quite unstable, and then there was an earthquake beneath the mountain on the morning of May 18."

The unstable mass began to slide away which, in effect, took the lid off the mountain. All of the confined pressure and pent-up energy was released.

"The thing just blew," Taylor said. "The water held in cracks in the mountain instantaneously flashed to steam. By then (the top) was shaped like an amphitheater, so instead of blowing straight up, it blew sideways. That's what overwhelmed the forests some 20 miles away.

"Close to the mountain, it stripped the soil right down to bedrock — just threw it off the ridge," he added.

Taylor said the sequence of events leading up to the eruption was rare among Cascade peaks. The only other mountain which appears to have fallen away in a landslide before erupting is Mount Shasta in northern California, an event that occurred about 300,000 years ago.

"The geologic records show a great many eruptive events in the Cascades," he said. "But we don't have the resources to determine when each eruption occurred or how much time passed between them."

David Stauth, OSU News Service

Norm Anderson, a professor of entomology at OSU, uses a net to obtain samples of aquatic insects from Clearwater Creek in August 1989. This is the exact area shown in the aerial view (above right.)

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"It was a struggle, at first, to get the Forest Service to consider the ecological aspects of the situation," Sedell said. "They looked at it as just another disaster, like a forest fire. Ecologists were treated at first sort of like voyeurs, who didn't really belong there, and we had to fight to gain entry to the area."

Nature repairs scars

But scientists, including many from OSU, did get in. They studied lake and stream ecology; insects and other tiny life forms; geology; and the return of trees, plants and animals.

And in the past 10 years, the most common reaction among the scientists has been surprise at the speed of the recovery, the way in which nature could repair such devastating wounds in such a short time.

"Things have really boomed back fast, in many ways," Sedell said. "The life returned in successional patterns that were fascinating to study. There are now fish in the streams. And in some of the lakes that have not been stocked with fish, the zooplankton is growing to huge sizes, without any predators to eat them."

Region now living laboratory

By Carolyn Homan
OSU News Service

The early lessons of death and destruction on Mount St. Helens have given way to recovery and regeneration in the 10 years since the blast.

The mountain has many lessons left to teach, according to Fred Swanson, a professor of geology and forest science at Oregon State University, and U.S. Forest Service geologist. To scientists, students and visitors alike, Mount St. Helens stands as a marvelous living laboratory.

Swanson, who works as part of an ecosystem group at the Forestry Sciences Laboratory at OSU, said the eruption was "the chance of a lifetime" to study the geological-ecological interactions in a relatively accessible place.

In the early post-eruption days, a new visitor to the mountain faced a day of "oh, wows," he said. "It's just so overwhelming at first."

But the educational aspects soon take over because of the "tremendous spectrum of opportunities." As an educational resource, St. Helens stands out.

"A lot of other volcanoes have erupted, but this one is special," Swanson said. Because of pre-eruption studies and instrumentation in place before and during the blast, scientists have a much better record of the events than virtually anywhere else in the world.

The early "death and destruction" view has given way to an historical perspective. Perhaps the most powerful aspect of the interpretive education program throughout the "devastated" area is the rapid recovery and regeneration of forests, streams and lakes, Swanson said.

Many projects were funded that fostered communication among scientists in many disciplines and allowed ecological studies to be placed in their geological context. Some of the research is reflected in the public interpretive program at the visitor's center.

Quite a few students have done graduate and undergraduate work on St. Helen's and participated in field trips and workshops, primarily because of the rich nature of possibilities: water quality work, soil erosion, vegetation succession and regeneration, wildlife studies.

"Students see the effects of the intensity and duration of the disturbance very clearly," said Arthur McKee, site director of OSU's H.J. Andrews Experimental Forest. He has primarily researched recovery of vegetation on stream and lake shores.

The educational value multiplies because of the diversity, McKee said. Students were amazed by the example of Grizzly Lake, for instance, a body of water blasted completely out of its bed by the eruption.

Interference by man has clouded the interpretation of some data, but "in general," McKee said, "it's a fine laboratory. The students are awestruck by what they see."

Other OSU findings

■ **TREES** outside the immediate blast zone survived, and some even grew faster because of their dusting with ash. Seeds dropped by conifers have started fir and hemlock seedlings in deep ash, even though it has little nitrogen. Workers have replanted thousands of acres of trees; some of these have grown faster than normal because there is so little competition from other vegetation.

■ **PLANTS** such as mosses, huckleberry bushes and wild lilies have managed to survive for years despite being covered with ash.

■ **INSECTS** were scoured from streams by the blast, but many replacements flew back in. They have faced "boom and bust" cycles depending on each year's conditions.

■ **VEGETATION** by streams has recovered rapidly; in some areas, there are nearly as many plant species as before the blast. By lakes, recovery has been slower; the highest elevations have been the most severely affected.

Dave Barry

An invitation to schmooze with senators

Barry

Recently I got a long letter from Bob Dole. Bob, of course, is a leading Senate Republican who not only heads the Very Flat Corn-Infested States Caucus but also periodically runs for president, although he never succeeds because he's suspected of having a nasty streak. He'll be doing real well in the polls, but then he'll commit some subtly revealing gaffe, such as illustrating his views on the trade deficit by pulling the legs off a live rabbit, and poof, there goes the campaign.

But his letter is quite nice.

"Dear Mr. Barry," it says. "On behalf of my colleagues in the United States Senate, it is my privilege to invite you to accept membership in the Republican Senatorial Inner Circle and join President and Mrs. Bush for a special dinner. We're going to get naked and dance the lambada in a vat of fudge."

I'm just kidding about that last sentence, of course. The Republicans would use Jell-O. But I'm not kidding about Sen. Dole's letter, which really did invite me to join the Republican Senatorial Inner Circle.

"Senator Connie Mack placed your name in nomination," explains the letter. Connie Mack is a Republican senator from my state, Florida, who, despite being only a freshman, has already earned a tremendous amount of respect for the overall quality of his hair. According to Sen. Dole's letter, Sen. Mack nominated me "because he believes your accomplishments and commitment to our nation prove you worthy of membership in this prestigious organization."

See 'Barry'/C2