

# Mount St. Helens' recovery offers lessons

**Beth Casper, Salem, Ore., Statesman-Journal, 5-16-10**

It has been 30 years since Mount St. Helens erupted so violently that it leveled 150 square miles of trees, sent the mountain's north face 14 miles down the Toutle River and dropped gray ash around the world.

The impact of that event is still evident, three decades later. Thousands of people — including seismologists, ecologists, photographers and tourists — continue to flock to the Pacific Northwest mountain, about 150 miles from Seattle.

Since the eruption, May 18, 1980, scientists have gained new understanding about the ecology and species survival. Seismologists continue to monitor the volcano's intermittent earthquakes, and artists continue to be drawn to the site.

About 250,000 people go to the U.S. Forest Service's visitor centers every year, and about 100,000 people head to the south and east sides of the mountain annually, said Chris Strebig of the Forest Service.

Even though the 1980 eruption sparks visitor interest, the past 30 years have proved most fruitful to ecologists. By studying the recovering ecosystems, scientists know more about the resilience of certain species and the role of large herbivores such as elk, and they have a better understanding of biodiversity.

"Our understanding ... about how this process should unfold was woefully inadequate back in 1980," said Charlie Crisafulli, research ecologist with the Pacific Northwest Research Station. He has been studying the region since July 1980.

"The Mount St. Helens body of knowledge has helped recast our knowledge of disturbance ecology in a globally significant way," Crisafulli said.

He said that despite the landscape's recovery and significant "filling in" after 30 years, the eruption's impact can't be covered up.

"The signature from 1980 is still easily discernible," he said. "If you stand on a hillside or ridge, it is clear."

The destruction began at 8:32 a.m. on May 18, when the north side of the mountain slid away after two months of intense earthquake activity and weaker eruptions. The collapse produced the largest debris avalanche ever recorded. Mixed with water from Spirit Lake, the debris traveled more than 13 miles down the North Fork of the Toutle River, according to a report by the U.S. Geological Survey's Cascades Volcano Observatory.

The landslide uncorked pressurized magma and released a blast so powerful that 1,300 feet of the mountain's peak collapsed or blew outward, 24 square miles of valley was filled by a debris avalanche, 250 square miles of land was damaged by a lateral blast, and 57 people were killed, according to that report.

"Magma has gases that are trapped inside it very much like a bottle of soda," said Seth Moran, a seismologist at the Cascades Volcano Observatory. "You don't see the gas, you see the liquid. But when you shake it up, all the gas comes out at once."

The volcano belched ash for nine hours, releasing enough of it to bury a football field 150 miles deep. For weeks afterward, noticeable ash fell in 11 states. Mount St. Helens continued oozing lava within its crater until 1986, according to the report.

"There were 20 lava-dome-building eruptions between 1980 and 1986," Moran said.

## **ERUPTION CHRONOLOGY**

- **1979:** The mountain is a recreational haven. Half a million people a year visit the Spirit Lake area below the cone-shaped, 9,677-foot summit.
- **March 1980:** The volcano begins to show signs of unrest. Earthquakes and steam eruptions continue for several weeks.
- **8:32 a.m., May 18, 1980:** A magnitude-5.1 earthquake triggers a massive eruption and landslide, flattening 230 square miles of forest northwest of the summit and killing 57 people. A plume of ash extends 15 miles into the sky and coastal towns 250 miles away.
- **Summer 1980-October 1986:** Repeated minor eruptions build a 925-foot-tall dome of hardened lava inside the crater.
- **1982:** Congress and President Reagan create the 110,000-acre Mount St. Helens National Volcanic Monument for research, recreation and education.
- **1998:** First major seismic activity since 1986, with earthquakes as deep as 6 miles forcing magma to within a mile of the dome.
- **2001:** Another flurry of small earthquakes.
- **Sept. 23, 2004:** The start of a series of thousands of tiny, shallow earthquakes are recorded at St. Helens.
- **Sept. 26, 2004:** The U.S. Geological Survey declares a notice of volcanic unrest, closing the crater and upper flanks of the volcano to hikers and climbers.
- **Sept. 29, 2004:** Earthquakes increase to about four per minute, ranging in magnitude from 2.0-2.8. The USGS raises its warning system to the third of four levels.
- **Oct. 1, 2004:** Mountain briefly belches a plume of smoke and ash. Quakes subside but resume a short time later. Four more steam and ash explosions occur through Oct. 5.
- **Oct. 5, 2004:** Falling ash from explosion affects populated areas. A light dusting of ash extends north-northeast as far as 60 miles to the northeast part of Mount Rainier National Park.

- **Oct. 11, 2004:** Molten rock reaches the surface, marking new dome-building that had stopped in 1986.
- **Jan. 16, 2005:** An explosion destroys a camera and some measuring equipment that had been placed in the crater two days earlier.
- **March 8, 2005:** An explosion shoots volcanic ash to about 36,000 feet.
- **May 6, 2005:** Johnston Ridge Observatory, 5 miles from the mountain, reopens. It had closed Oct. 2.
- **May 18, 2005:** 25th anniversary of the eruption.
- **July 2005:** The dome continues to grow at a rate of almost 2 cubic yards per second.
- **From 2004 to January 2008:** About 125 million cubic yards of lava erupt onto the crater floor to form a new dome — enough to pave seven highway lanes 3 feet thick from New York City to Portland, Ore.
- **February 2008:** Mount St. Helens returns to slumber.
- **Feb. 21, 2008:** Alert level reduced to the advisory level (the second of four levels).
- **July 10, 2008:** Alert level reduced to its lowest — normal.