

MOUNT ST. HELENS—20 YEARS OF RECOVERY

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WEYERHAEUSER'S EFFORTS RECLAIMED FOREST LAND FROM VOLCANO'S DESTRUCTION

FOR 123 YEARS, MOUNT ST. HELENS SAT SILENT AND majestic, rising from the lush green forests of southwestern Washington. Then, 20 years ago this month, the dormant volcano awoke, jostled by a series of earthquakes that started March 20, 1980.

Steam and ash venting from the summit offered the first signs of renewed activity. Then, on May 18, 1980, at 8:32 a.m., Mount St. Helens erupted violently. An earthquake of magnitude 5.1 triggered one of the world's largest recorded landslides. More than 1300 feet of the mountain's top cascaded into the Toutle River Valley below.

A powerful blast shot rock fragments, highly charged gas, and superheated steam across the landscape, devastating almost 150,000 acres of privately owned, state, and national forest. The eruption and debris avalanche killed 57 people. Following the blast, pyroclastic flows of hot pumice, ash, and gasses surged down from the crater at 200 mph. Mudflows and associated flooding caused additional, extensive damage to public and private property downstream on the Toutle and Cowlitz Rivers.



Views of natural recovery nine years after the blast (above) and a 16-year-old forest planted by Weyerhaeuser in 1981.



Weyerhaeuser Company, which has owned and managed the St. Helens Tree Farm since 1900, lost nearly 68,000 acres—about 14% of the Tree Farm—to the blast. The U.S. Forest Service, the largest public landowner in the area, lost about 64,000 acres. Each took distinctly different approaches to recovery. Weyerhaeuser took immediate steps to reclaim and replant its land, while the Forest Service has let nature do the work on all by 10,000 acres that it did replant, in effect turning the remaining land into an ecological laboratory.

Weyerhaeuser considers its reforestation program “one of the most extensive and challenging in the history of intensive forest management.” About 36,500 acres of merchantable timber of various ages and species were damaged on Weyerhaeuser land. Another 26,000 acres of

very young trees were destroyed.

The remaining 5500 acres included meadows, lakes, streams, and land in the process of reforestation.

*Other Weyerhaeuser employees also contributed to this report. Much of the information is also available through Weyerhaeuser's Mount St. Helens web site: www.mountsthelens@weyerhaeuser.com.



The diagram above illustrates the stages of the eruption



The company also lost three logging camps (including buildings, equipment, and vehicles), 650 miles of roads, 19 bridges, and 16 miles of railroad.

THE SALVAGE

Following a National Institute for Occupational Safety and Health (NIOSH) study of the blast zone area, company and contract employees began salvage harvest operations on September 15, 1980, of the damaged trees on Weyerhaeuser land.

Quick action was necessary because of the risk of disease and insect damage to the fallen timber. More than 1000 people were involved (see related story, p. 37). During peak summer periods, more than 600 truckloads of salvaged logs were removed each day. By November 1982 this phase of the recovery was largely completed.

In total, 850 million board feet of timber was removed from land owned by Weyerhaeuser. Species salvaged were Douglas-fir, hemlock, silver fir, noble fir, and western red cedar.

THE NATURAL RECOVERY

Nature proved to be more resilient than many expected. Natural revegetation was visible within a month of the eruption. Sprouting from surviving underground root systems, bracken fern (*Pteridium aquilinum* var. *pubescens*) pushed its way through 6 inches of coarse ash before it could break through a crust of fine textured ash. (The ash from dacitic magma has a chemical content of 64% silica-glass.)

Natural vegetation in areas less than six miles north of the mountain returned very slowly. Ash depths here ranged up to several feet, and in some cases, the soil was removed down to bedrock by the eruption. In these locations, at elevations between 3000 and 5000 feet, lupine (*Lupinus* sp.), lily (*Erythronium montanum*), fireweed, and pearly everlasting were among the first plants to dot the landscape.

WEYERHAEUSER'S REFORESTATION

Within four weeks of the eruption, Weyerhaeuser foresters and scientists planted research study plots to determine the effects of ash on reforestation. Based on these results, Weyerhaeuser scientists predicted normal survival and growth could be expected for conifer seedlings as long as the ash was scraped away so that the seedlings' roots could be placed directly in the underlying mineral soil.

Weyerhaeuser completed the reforestation of damaged areas on its St. Helens Tree Farm in June 1987. A total of 18.4 million trees were hand-planted on over 45,500 acres, one by one. Most of the seedlings were grown at Weyerhaeuser nurseries in Washington and Oregon. Species planted were those that had grown in the area prior to the eruption: Douglas-fir and noble fir, with some lodgepole pine and black cottonwood.

By 1999, some of the seedlings planted in 1981 had grown to between 45 and 50 feet in height, and some individual trees were well over 55 feet tall!

This forest will be ready for thinning in 2008 with final harvest beginning 2026. The reforestation cycle will then begin again.

WILDLIFE

Within the 150,000-acre blast zone area, almost all above-ground life perished during the 1980 eruption. The Pacific tree frog (*Hyla regilla*) and other animals and insects survived by being underground and sheltered from the eruption and its aftermath.

Wildlife biologists spent several years after the eruption monitoring the return and movement of wildlife in the blast zone.

Given special attention were the Roosevelt elk (*Cervus elaphus* var. *roosevelti*), which migrated back to the blast zone as early as 1981.

As a result of reforestation and the natural reestablishment of the plant communities, the eruption area now provides year-round habitat for hundreds of elk.

Fish populations also have shown a strong, post-eruption recovery. Despite the severe conditions created by the eruption, production rates of stocked coho salmon in three streams within the blast area were equal to or greater than those measured in forested streams of comparable size outside the eruption area.

FORESTRY AT WEYERHAEUSER

Weyerhaeuser has owned and managed private working forests for nearly a century. Since 1900 the company has led many important developments in sustainable forestry, including long-term forest ownership, prompt reforestation, high-yield practices, and protection of water, wildlife, and other natural resources.

Weyerhaeuser manages its private forestland in the United States with emphasis on:

- **Productivity**—The company intensively manages its forestlands in order to produce as much high-quality wood as possible.
- **Sustainability**—Weyerhaeuser harvests and promptly replants at rates that ensure the availability of forests and forest products for many generations to come.

- **Stewardship**—Weyerhaeuser takes care to protect a wide range of natural resources found in its forests, including water quality and wildlife habitat.

Forest practices

Weyerhaeuser improves the productivity, quality, and health of its forests by combining a number of practices, including:

- Preparing sites for planting in a way that protects soils and improves seedling survival
- Planting promptly after harvesting, usually within one year
- Hand-planting seedlings—primarily loblolly pine in the South and Douglas fir and red alder in the West—that have been carefully developed to enhance growth, wood quality, and hardiness
- Thinning forests to give remaining trees more room to grow and to provide raw materials for paper and wood products manufacturing
- Pruning trees to produce higher quality lumber and building materials
- Fertilizing selected stands to supplement natural nutrient levels and protecting forests against disease, insects, and fire

TIPS FOR TOURING MOUNT ST. HELENS

On May 18, 1995, the 15th anniversary of the eruption of Mount St. Helens, the Forest Learning Center opened on the State Route 504 corridor leading to Mount St. Helens. The center focuses on the “Return of the Forests to Mount St. Helens” by utilizing interactive displays and theater presentations. The center was designed to provide learning opportunities for people of all ages and abilities. The Forest Learning Center is a public/private partnership between the Washington State Department of Transportation, Weyerhaeuser Company, and the Rocky Mountain Elk Foundation.

DIRECTIONS TO THE CENTER

Take Interstate 5 to Exit 49 (Toutle/Castle Rock exit). Exit onto State Route 504 and drive east for approximately 33 miles. Watch for the Forest Learning Center on your right after passing milepost 33. If you are traveling from the north, you can also take Exit 60 or 63 and follow State Route 505 until you intersect with State Route 504 for the rest of your trip. Weyerhaeuser's Forest Learning Center is open daily from 10:00 a.m. to 6:00 p.m., Mid-May through October. Admission is free.

Groups are asked to make reservations at least two weeks in advance by calling +1 360 414-3439. For school groups, the center recommends one adult chaperone for every five or six students. Groups should be limited to 60 people or less, if possible.

Mount St. Helens provides countless learning opportunities for visiting schools and groups. The Spirit Lake Memorial Highway (SR 504) accesses great views of the volcano and the blast zone, as well as several world class visitor centers. Each visitor center explores

a different aspect of the Mount St. Helens story. You can enhance your field trip to the volcano by carefully planning and visiting several centers in a coordinated manner. You can reach the Forest Learning Center at Mount St. Helens by calling +1 360 414-3439.

FOREST SERVICE CENTERS

It's well worth visiting the neighboring U.S. Forest Service Centers as part of a visit to the FLC and Mount St. Helens.

Mount St. Helens Visitor Center: At milepost 5 on State Route 504, explore events of the May 18, 1980, eruption and world geology. This center features a 10-minute slide show and a 22 minute movie, which is shown on the hour. The displays also contain information about world geology and Mount St. Helens history. A giant walk-through volcano delights visitors. Call +1 360-274-2100 for hours or to book a group visit.

Coldwater Ridge Visitor Center: At milepost 43 on State Route 504, investigate the return of life to the blast zone. You can view a fast-paced 8-minute movie, that introduces the story of colonizers and survivors near Mount St. Helens. Hiking trails lead visitors into the heart of the blast zone. A well developed environmental education program assists classes that book in advance. Call +1 360-274-2131 for more information.

Johnston Ridge Observatory: The newest visitor center, located at milepost 52 on State Route 504, offers the best view of Mount St. Helens. A spectacular 16-minute movie, featured every half hour, details specific events of the 1980 eruption. Other displays include geological monitoring and stories and pictures of eruption survivors. For more information call +1 360 274-2140.



- Sustainably harvesting approximately 2% of the company's western forestlands each year (age 40 to 50 years) and approximately 3% of its southern forestlands each year (age 30 to 40 years).

Weyerhaeuser has adopted the following stewardship commitment:

- To continuously improve the company's performance as responsible stewards of the environmental quality and economic value of the forests it manages.
- To actively listen to and act upon public expectations.
- To communicate consistently to ensure understanding of its forest stewardship goals, practices, and accomplishments.

This commitment means Weyerhaeuser manages its forestlands for the production of wood. In addition, its goals are to protect, maintain, or enhance other important environmental values. To help achieve these goals, Weyerhaeuser follows the American Forest & Paper Association's (AF&PA) Sustainable Forestry InitiativeSM (SFI).

Sustainable Forestry InitiativeSM

The Sustainable Forestry InitiativeSM is a comprehensive program of forestry and conservation practices designed to help ensure that future generations of Americans will have the same abundant forests that everyone enjoys today. The SFI was developed nationally by AF&PA members—including Weyerhaeuser—who make 90% of the paper and 60% of the lumber produced in America today. Compliance with the SFI is mandatory for companies to retain membership in AF&PA. To this end:

- Weyerhaeuser fully supports the SFI and is applying its principles to all its private U.S. forestlands.
- Weyerhaeuser views SFI as a natural extension of its long-standing commitment to environmental stewardship and sustainable forestry.

Weyerhaeuser expects its contractors to meet SFI principles and objectives and encourages other private landowners that supply wood to do the same.

FORESTRY RESOURCE STRATEGIES

Weyerhaeuser's company foresters in each region develop specific goals and measurements for protecting a range of forest resources, including:

Water quality and fish habitat

Example: To date, Weyerhaeuser has completed 29 watershed analyses covering over 731,000 acres of its

forestlands in Oregon and Washington. As a result, the company is repairing or retiring forest roads, replacing road culverts, installing and improving fish ladders, repairing stream structures, improving fish habitat, enhancing stream channels, and creating spawning pools.

Wildlife habitat

Example: Weyerhaeuser is participating in the Georgia Department of Natural Resources' "Forestry for Wildlife" project. This partnership promotes forest practices that are favorable to wildlife and compatible with the economic objectives of private forest landowners. Measures include outreach to the public, contractors and other landowners, seeding ditches with wildlife friendly vegetation, identifying and protecting sensitive sites, and allowing and controlling recreation on our lands.

Soil productivity

Example: Foresters in Mississippi and Alabama are conducting ongoing research to measure how different amounts of organic matter left on the ground after harvest and planting affect long-term forest growth and health.

Cultural, historic, and aesthetic values

Example: Weyerhaeuser agreed to protect culturally and archeologically significant sites on Arkansas and Oklahoma lands it acquired in an exchange with the U.S. Forest Service (USFS). Participants include Weyerhaeuser, USFS, Arkansas and Oklahoma State Historical Preservation Offices, Oklahoma Archeological Survey, the Choctaw Nation, and the Caddo Tribe. TJ



Ford and Gilchrist are St. Helens Tree Area foresters. Photos provided by Weyerhaeuser and U.S. Geological Survey.