

Volcano Review

Visitor's Map & Guide to Mount St. Helens National Volcanic Monument

On the morning of May 18, 1980, a magnitude 5.1 earthquake triggered the collapse of the summit and north flank of Mount St. Helens and formed the largest landslide in recorded history. Gas rich magma and super-heated groundwater trapped inside the volcano were suddenly released in a powerful lateral blast. In less than three minutes, 230 square miles of forest lay flattened. The hot gas and magma melted the snow and ice that covered the volcano. The resulting floodwater mixed with the rock and debris to create concrete-like mudflows that scoured river valleys surrounding the mountain.



Before

A plume of volcanic ash and pumice billowed out of the volcano reaching a height of 15 miles and transformed day into night across Eastern Washington. Avalanches of super-heated gas and pumice, called pyroclastic flows, swept down the flanks of the volcano. While the landslide and lateral blast were over within minutes, the eruption column, mudflows and pyroclastic flows continued throughout the day and following night. By the following morning major eruptive activity had ceased and the landscape appeared to be a gray wasteland.



After

Welcome to a Special Place Worth Protecting

In 1982 Congress designated 110,000 acres surrounding the volcano as Mount St. Helens National Volcanic Monument. Lessons learned by scientists have improved our understanding of volcanic processes, extended our ability to forecast future eruptions, and provided insight into how ecosystems respond to catastrophic disturbances.

Each year thousands of students visit Mount St. Helens and are enriched by discoveries from research. State-of-the-art Visitor Centers and engaging ranger programs extend these lessons to millions more. Roads, trails, and viewpoints offer visitors world class opportunities to explore this fascinating living laboratory.

You can help protect this special place by respecting the following rules and regulations:

- Stay on trails and paved areas
- Do not remove or disturb any natural feature
- Do not feed wild animals
- Please do not litter, pack out your trash
- Pets are prohibited at many sites

With your cooperation we can all experience the raw power of the eruption, and the resilience of life at Mount St. Helens.



*Clifford D. Ligons
Monument Manager*



USDA ■ Forest Service ■ Gifford Pinchot National Forest
www.fs.fed.us/gpnf/mshnvm



Life Springs Eternal *Survivors and colonizers*

at Mount St. Helens



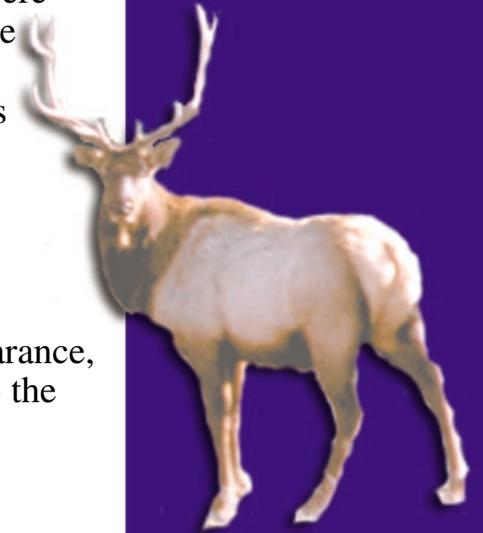
A biologist studies a developing plant community in a wetland created by the 1980 eruption.

Although areas around Mount St. Helens appeared barren and lifeless after the 1980 eruption, some plants and animals did survive. Pocket gophers in underground burrows, fish in ice covered lakes and salamanders hibernating in mud were protected from the hot, stone-filled wind of the lateral blast. Plants such as willow, vine maple and black cottonwood were able to re-sprout from roots protected in moist soil.

Despite surviving the eruption, many of these plants and animals were unable to survive in the harsh new environment, but some were able to tolerate the extreme conditions and help pave the way for new colonizers. Winds brought light seeds and insects to the area. Plants and insects attracted birds, deer and elk. Heavier seeds rode in on the feathers of birds and in elk droppings. Ponds and springs created by the eruption became the centers of life for survivors and colonizers.

Today, many areas around the volcano still have a desert-like appearance, but the vast majority of plant and animal species that were found at Mount St. Helens prior to the 1980 eruption have returned. Some, like the Roosevelt elk have returned in numbers that far exceed pre-1980 populations. The interactions of these plants and animals remind us of the interconnected world we live in.

The Roosevelt Elk has flourished in the blast zone and influence the recovery by spreading seeds and nutrients.



Fire and **Ice** Shape the Crater



Snow and ice accumulate behind the lava dome.

Lava Dome Begins to Rebuild Summit

After the May 18, 1980 eruption, thick pasty lava crept onto the crater floor, building a lava dome. Pressure from steam and volcanic gas caused this dome to explode, sending hot rocks across the crater floor. Over the next six years this cycle of dome building eruptions and destructive explosions occurred several times. Geologists monitored earthquakes, gas emissions, and surface deformation to help forecast impending eruptive activity. When the last dome building eruption ended in October of 1986, the dome was 900-foot tall and 3000-foot wide. Today, the crater and lava dome are often cloaked in a haze of dust resulting from rocks falling from the crater walls and occasional wisps of steam from the lava dome.



Geologists monitor lava dome.

A Glacier is Born

In the crater, much more snow falls each winter than melts during the summer. The almost perfect north facing amphitheater, formed by the crater walls, shades this snow. Rocks that tumble to the crater floor insulate this growing mass of snow and ice. Time and pressure from over-lying snow slowly change this snow to ice.

Since 1982, scientists estimate that the thickness of the ice mass has increased by nearly 50 feet each year. Surface cracks suggest that the ice mass is beginning to move. As the size of the ice mass increases it may begin to erode the lava dome it surrounds. Today, the snow and ice in the crater is equal in volume to all of the pre-eruption glaciers on Mount St. Helens combined.



Hot gas forms caves in crater ice.

At Mount St. Helens, geologists are carefully monitoring the growth of North America's youngest glacier. The glacier has geologist's attention because rapid melting by a future eruption could produce a massive mudflow and potentially threaten downstream areas.



The Mount Margaret Backcountry

Hikers may once again explore trails that lead to sapphire lakes, pinnacle studded ridges and flowered mountain slopes of the Mount Margaret Backcountry. Trails have narrow tread, are steep in places, and can climb over 2,000 feet in elevation. Eight camps can accommodate tent campers at four lakes and four upland locations. Camping permits are required and camping is limited to these campgrounds only. Maximum group size for camping is four people. Pets and pack stock are prohibited in the Mount Margaret Backcountry. Fires are not allowed, plan to use a camp stove for cooking.

Camping permits can be obtained at Monument Headquarters in Amboy, Coldwater Ridge Visitor Center and Cowlitz Valley Ranger Station in Randle. For additional information call or visit our website.

CLIMBING the VOLCANO

Climbing Mount St. Helens is popular with both experienced and beginning mountaineers. People climb the volcano year-round, but spring through late summer is the most popular time of year. The climb is not a trail hike, it is a rugged, off trail scramble. The climb is suitable for people in good physical condition who are comfortable on steep irregular terrain. Prior to mid July, climbers can expect to encounter snow on their climb. Most climbers complete the round trip in 8 to 12 hours. The route climbs 4,500 feet from trailhead to the rim in a distance of about 5 miles. All climbers should carry extra clothing and rain wear, sun protection for eyes and skin, extra food and water, sturdy boots, gaiters, gloves, topographical map and a first aid kit. If you plan to climb on snow, carry and know how to use an ice axe. Wind, rain, fog



Climbers at crater rim

and even snow can form quickly any time of the year. The temperature at the rim can be 20 to 30 degrees colder than that of the surrounding valleys. Be prepared!

Climbing permits are required year round for each person above 4,800 feet of elevation on the south slopes of Mount St. Helens. For current climbing conditions or permit and reservation information call or visit our website.

School Groups

Teachers, online field trip registration is easy and required! Our website will prepare you and your students for a visit to Mount St. Helens. You will find online registration forms, suggested itineraries, downloadable lesson plans and descriptions of ranger-led programs. Also included are descriptions of our sites, driving times, maps and directions.

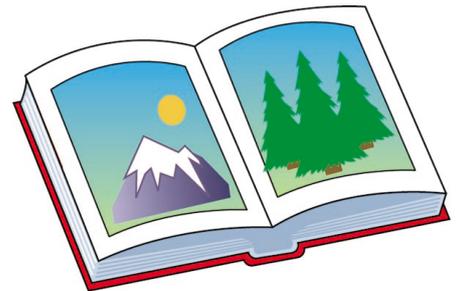


www.fs.fed.us/gpnf/mshnvm/education/teachers-corner

Northwest Interpretive Association

is a non-profit organization that supports educational programs and visitor services of the Forest Service and other public land management agencies.

Proceeds from the local sale of educational materials are used to fund Monument interpretive programs, new exhibits and displays and much, much more. To order books, videos, posters and other materials pick up a catalog at any visitor center or contact:



- Northwest Interpretive Association
3029 Spirit Lake Highway
Castle Rock, WA 98611
- www.nwpubliclands.com
- Phone: (360) 274-2127
- Fax: (360) 274-7124

Contact Information

Emergency911

Forest Service Offices

Coldwater Ridge Visitor Center(360) 274-2114
 Cowlitz Valley Ranger Station(360) 497-1100
 Gifford Pinchot National Forest Headquarters(360) 891-5000
 Johnston Ridge Observatory(360) 274-2140
 Mount Adams Ranger Station(509) 395-3400
 Mount St. Helens National Volcanic
 Monument Headquarters(360) 449-7800

Other

Climbers Register (Jack's Grill and Store)(360) 231-4276
 Mount St. Helens Visitor Center(360) 274-0962
 Mount St. Helens Concessions(360) 274-2984
 National Recreation Reservations(877) 444-6777
 PacifiCorp(503) 813-6666
 Weyerhaeuser Forest Learning Center(360) 414-3439
 Washington State Parks(360) 902-8844

Websites

Cascades Volcano Observatory USGSvulcan.wr.usgs.gov/
 Gifford Pinchot National Forestwww.fs.fed.us/gpnf/
 Mount St. Helens National Volcanic Monumentwww.fs.fed.us/gpnf/mshnvm/
 Northwest Interpretive Associationwww.nwpubliclands.com
 Washington State Chamber of Commercewww.wcce.org
 Washington State Parkswww.parks.wa.gov
 Weyerhaeuser Forest Learning Centerwww.weyerhaeuser.com/sthelens



The Volcano Review is produced by the Northwest Interpretive Association in cooperation with the Forest Service.

**25th
 Anniversary
 1980 to 2005**

Next year, 2005 marks 25 years since the 1980 eruption. Many exciting events are planned to commemorate the eruption. For a schedule of events and activities, visit our website.

We appreciate your support!

The Monument Pass is a one-day per person pass required at the Mount St. Helens Visitor Center, Coldwater Ridge Visitor Center, Coldwater Lake Recreation Area, and Johnston Ridge Observatory. By purchasing your Monument Pass at these sites you are helping to support interpretive services and visitor facilities. You have the following options:

Single Site	Multiple Site	Age
\$3 Adult	\$6 Adult	16 and older
\$1 Youth	\$2 Youth	5-15 years
Free	Free	4 and under



The National Forest Recreation Day Pass is a parking pass required at many National Forest recreation sites in Washington and Oregon. The cost is \$5 per day or \$30 for an annual pass. Passes are available at Forest Service offices, many retail outlets, by phone (800) 270-7504 and online at www.naturenw.org. For your convenience, self-service pay stations have been placed at selected recreational sites. To find out more visit: www.fs.fes.us/r6/feedemo.

Golden Eagle, Golden Age, and Golden Access Passports are honored at Coldwater Ridge Visitor Center, Johnston Ridge Observatory, and Recreation Day Pass sites. Golden passports are not honored at Mount St. Helens Visitor Center.

Fee Changes in 2005

In a continuing effort to simplify fees, Mount St. Helens will be moving towards a vehicle entrance fee rather than a per person fee. This vehicle pass will allow all passengers in a private vehicle to take advantage of the many sites and services available within the Monument. For details and updates, visit our Forest website.

Remember, your fees stay here to support the services and facilities you use.



Keep and use or return for others to use.

