



HARMONY TRAIL GUIDE

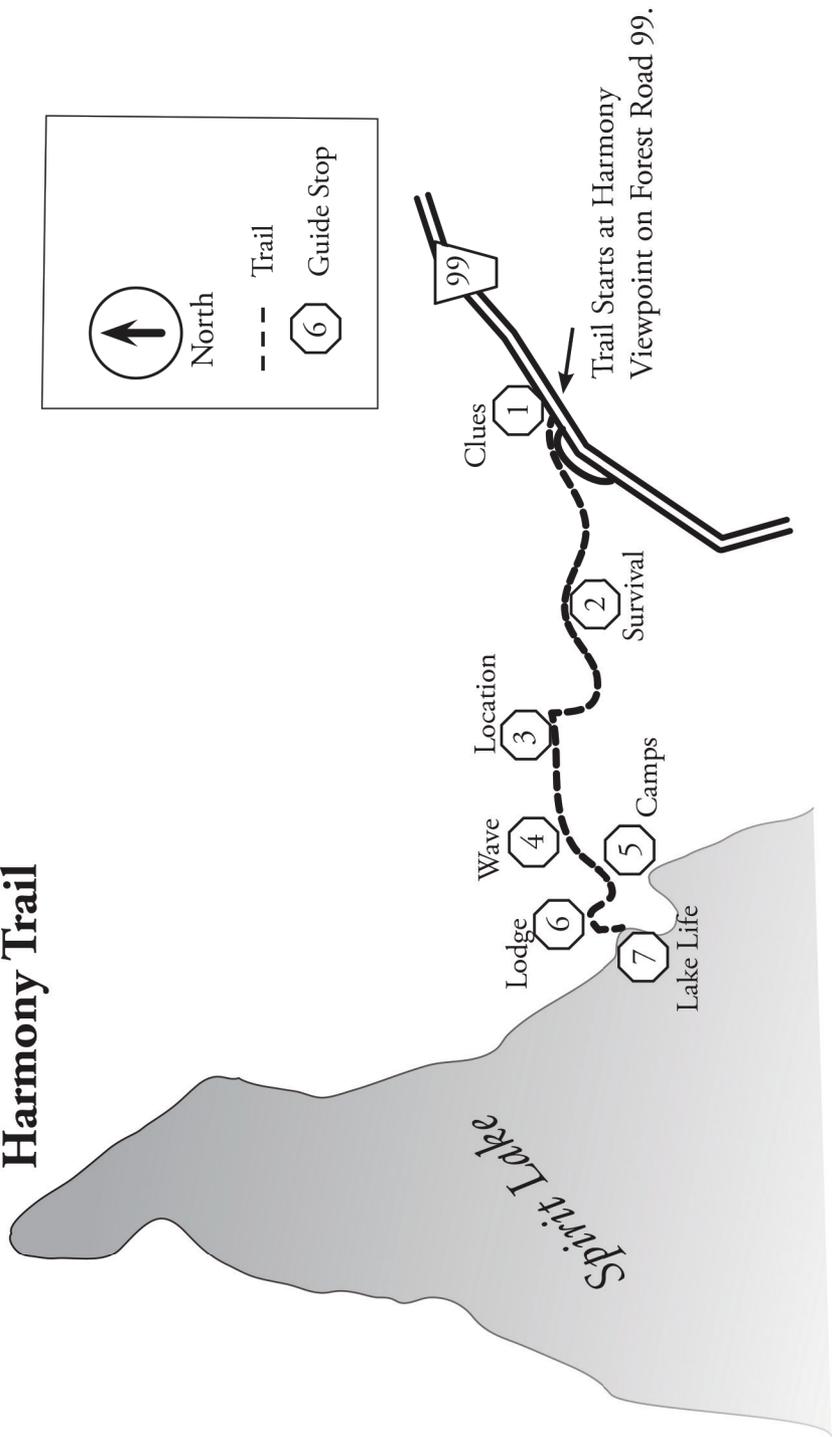
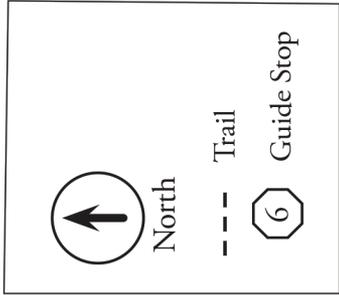


Harmony Falls Lodge before 1980 eruption

*Explore How the May 18, 1980 Eruption
Changed this Landscape*

gifford pinchot
NATIONAL FOREST

Harmony Trail



Welcome to Harmony Trail

Use this trail guide to explore clues that unlock how the May 18, 1980 eruption changed this landscape and discover how memories linger in the stories of people who visited Spirit Lake in the past.

Look for wooden posts along the trail with the corresponding number  that matches the stops in the following pages. On page 14-17 of this guide there is a list of common plants and important information on invasive plants.

Trail Information:

Length: 2 mile round trip

Elevation: 600' descent and then 600' climb out on a steep, ash-covered trail. Remember what goes down must come up. Plan for the return to be more strenuous and take longer.

Pets are prohibited on the trail.

Bring water and extra clothing as there is no drinking water available on the trail and the weather can quickly change.

Stay on the Trail: This volcanic landscape is a laboratory for scientists from around the world. Please protect this special place by staying on the trail. Collect nothing—no berries, no flowers, no rocks, no fish, no frogs.

Watch Your Footing

Volcanic rock can create an unstable trail surface and lead to falls and injury.

Stay off floating logs. The log mat on Spirit Lake can rapidly shift and drift away with prevailing winds.

Turn the page and find Guide Stop 1 next to the big rock at the trailhead.

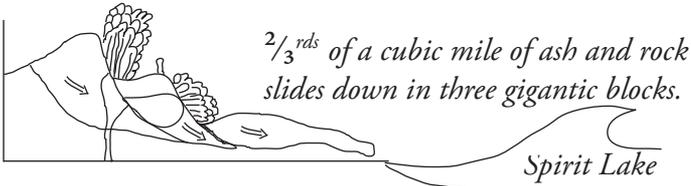


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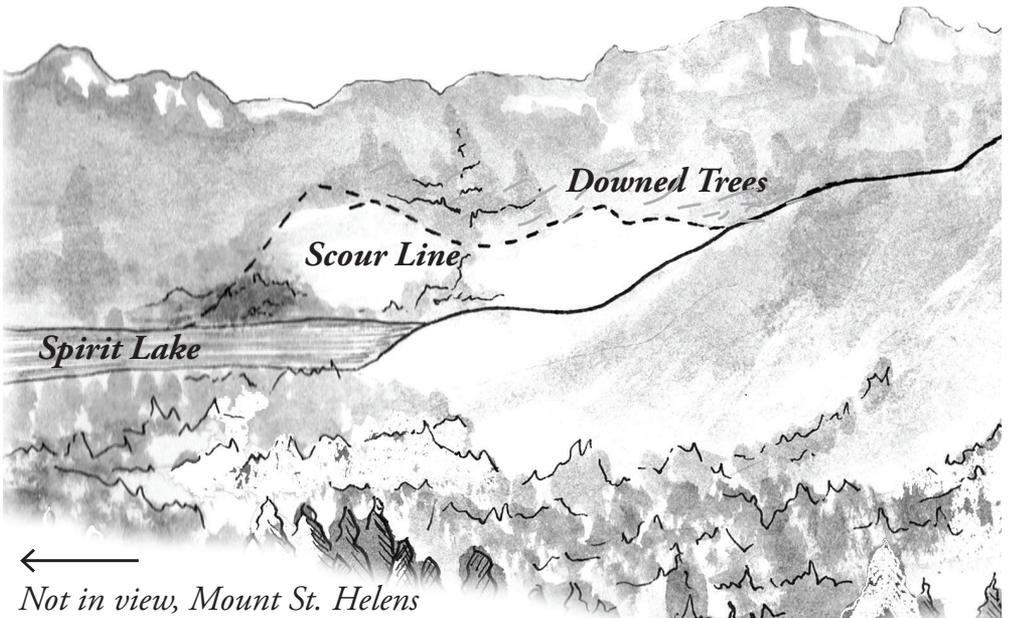
Clues to the Eruption are Revealed

As you descend to the shore of Spirit Lake, keep your eyes open to clues that reveal the story of the May 18, 1980 eruption.

The collapse of north side generates a 5.1 earthquake.

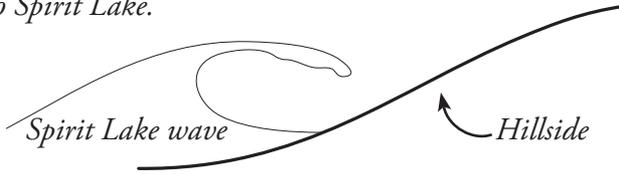


One part of the landslide slams into Spirit Lake sending a tsunami-like wave surging across the lake.



in the Evidence Left Behind

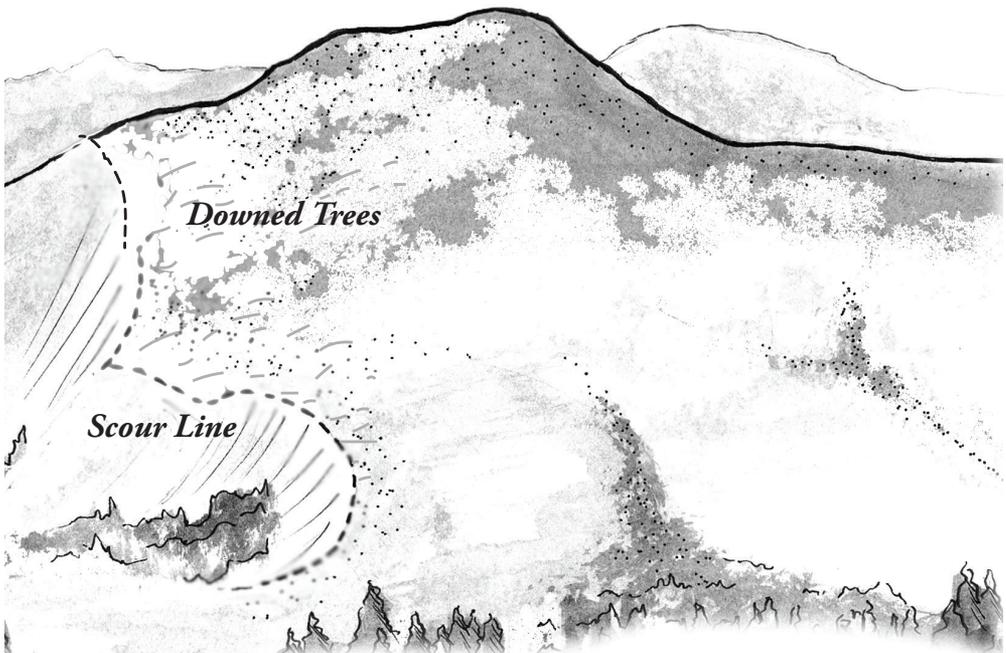
The 300-foot tall wave sloshes 800 feet up the hillside on the north side of the lake. As it recedes, the massive wave scours the vegetation down to bedrock and pulls downed trees back into Spirit Lake.



Look across the valley for evidence of the scour line.

Ponder as You Wander

As you begin your descent, look for places on this sheltered hillside that provided enough protection from the blast for some plants and animals to survive.





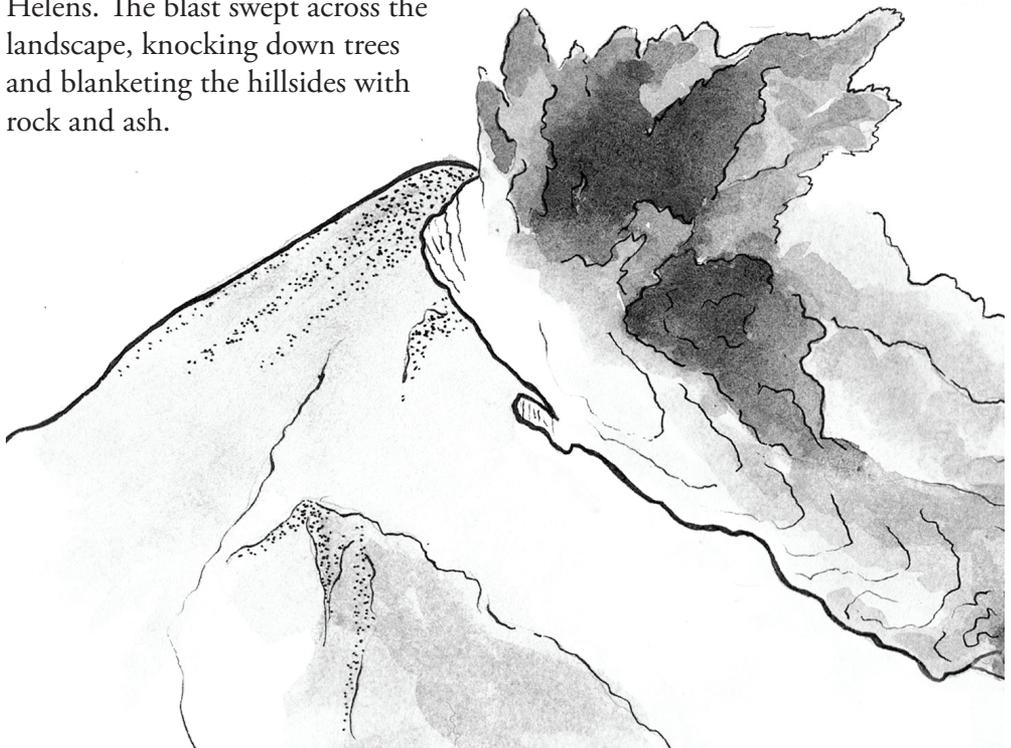
2

Survival Was a Matter of

At the time of the eruption small animals and roots that were below ground and under snow were protected from the full force of the blast.

Imagine the forest before the eruption. The trees were about 400-years old, mostly noble fir and mountain hemlock. An understory of shade tolerant plants, huckleberry and scattered trilliums covered the forest floor. The dark forest understory was bathed in dappled light. This towering old-growth forest was destroyed on May 18th, 1980.

As the landslide exposed its pressurized interior, a lateral blast of rock and ash burst out of the side of Mount St. Helens. The blast swept across the landscape, knocking down trees and blanketing the hillsides with rock and ash.



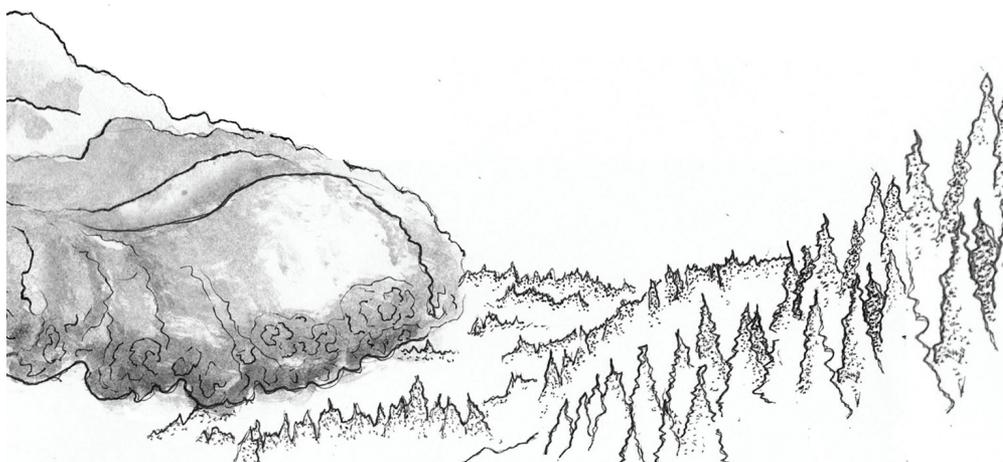
Timing and Location

As it knocked down the forest, shredded branches and bark became part of the blast. The blast flowed across the land like a roller coaster, swirling up and over ridges before descending and slamming into the next slope. Scientists calculated that the blast traveled at more than 300 mph and was the temperature of a hot oven—between 360 and 680 degrees Fahrenheit.

Can you find trees felled by the blast or the remains of shattered stumps? Look for the standing dead trees that were sheltered from the blast by the steep ridge that lies between here and Mount St. Helens.

Ponder as You Wander

Why are north facing slopes like the one that we are hiking on, so green compared to the south facing slopes across the valley?





3

Survivors Create Spectacular Change

Surviving the eruption, either as a plant or animal, was a matter of timing and location. Prior to the eruption, thick winter snows were slow to melt at this elevation, especially on shady north-facing slopes like this one.

In May of 1980 a lingering snowpack sheltered the ground surface and below-ground dwelling animals such as mice. Hardy understory plants were protected beneath a thick blanket of snow. Being tucked behind a ridge further protected them from the blast. These north-facing slopes are home to many eruption survivors, giving them a head start on forest re-establishment.

Snow-protected survivors were an important initial source for recolonization, allowing seeds and animals spread out to adjacent areas. Like ripples in a pond, the establishment of the forest spread out from these pockets of survivors.

A Tale of Two Slopes

There is a drastic difference between the two sides of this valley. A dense thicket of Sitka alder blankets the north-facing slope where you are standing. Compare this with the south-facing slopes across the valley that has far less vegetation. The greenest areas are gullies where volcanic ash has eroded away exposing underlying soil. Can you locate these green gullies as you look across the va!

Ponder as You Wander:

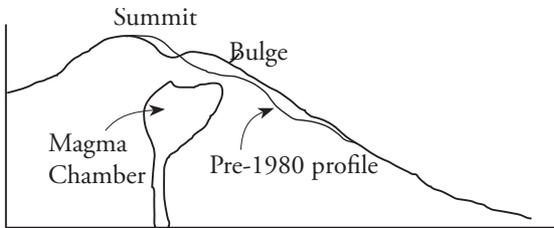
As you continue down the trail, think about immensity of the eruption and its influence on landscape.



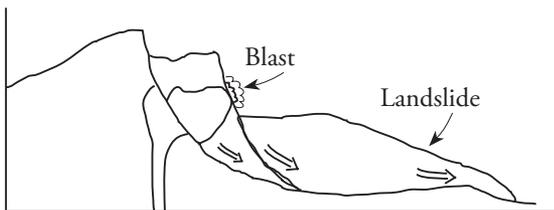
4

A Searing Blast and Towering Wave Swept Away an Entire Forest

On March 20, 1980 the build up to the eruption began with shallow earthquakes. Between March and May there were thousands of earthquakes, and small steam explosions signaled magma was rising in the volcano. As the magma rose, it fractured the north face, pushing the mountainside outward over 300 feet, creating an enormous bulge. The bulge grew outward at a rate of 5-feet per day.



At 8:32 a.m. a 5.1 magnitude earthquake coincided with the collapse of the unstable bulge generating the largest landslide in recorded history. Removal of the north face of the mountain uncorked pent-up pressure deep within the volcano releasing a large sideways blast that swept northward.



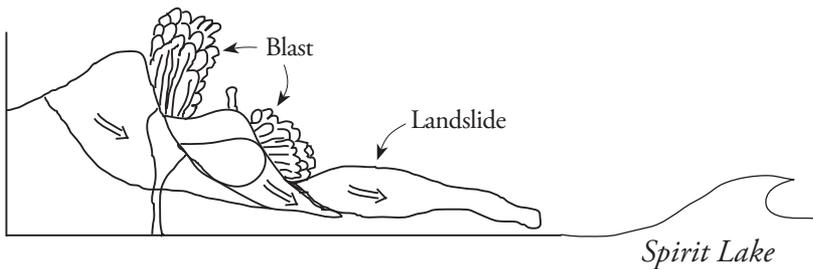
Turn the page to continue



4

The landslide slammed directly into Spirit Lake creating a 300 foot high tsunami-like wave that crossed the lake. As fast as the wave was, it was quickly overtaken by the 300 mph blast, which knocked down trees as it roared across the hillside.

Moments later, the wave surged 800 feet up the ridges to the north, washing away the blown down trees. As the wave receded, it swept the blown down trees back into the lake.



Can you find clues that reveal the path of the landslide and blast? Look for areas with no blown down trees that were scoured by the wave and the large floating log mat that came to rest on the surface of Spirit Lake.

Ponder as You Wander:

Nature's own story of renewal is ongoing, while personal stories of the area and times past are preserved in people's memories. Can you imagine what it was like to hike and camp in the forests and on the shores of beautiful Spirit Lake?

5

Memories of Youth Sparkle in Spirit Lake's Water

As a camper I remember waking up in the cold cabin to peek out of a knothole at the head of my bed to see if the mountain was "out". Sometimes it was perfectly reflected in the still morning lake, sometimes not.

—YMCA Camper, 1940s—

For many a camper, Mount St. Helens' snow-capped cone and the cold, clear water of Spirit Lake beckoned each summer. Youth and organization camps dotted the shore. Many came to camp at a Forest Service campground or spend a weekend at a nearby lodge. Their memories are rich and their connection to nature is profound in this special place.

I learned how to swamp (and un-swamp) a canoe there...into icy waters that were so clear that you could count the rocks on the bottom, 20 feet below. —YMCA Camper—

On May 18, 1980, these special places were buried under 200 feet of mountaintop and lake. The personal loss of the Spirit Lake campers is real and their cherished memories live on in their stories. Time will help soften but not erase their loss.

Ponder as You Wander:

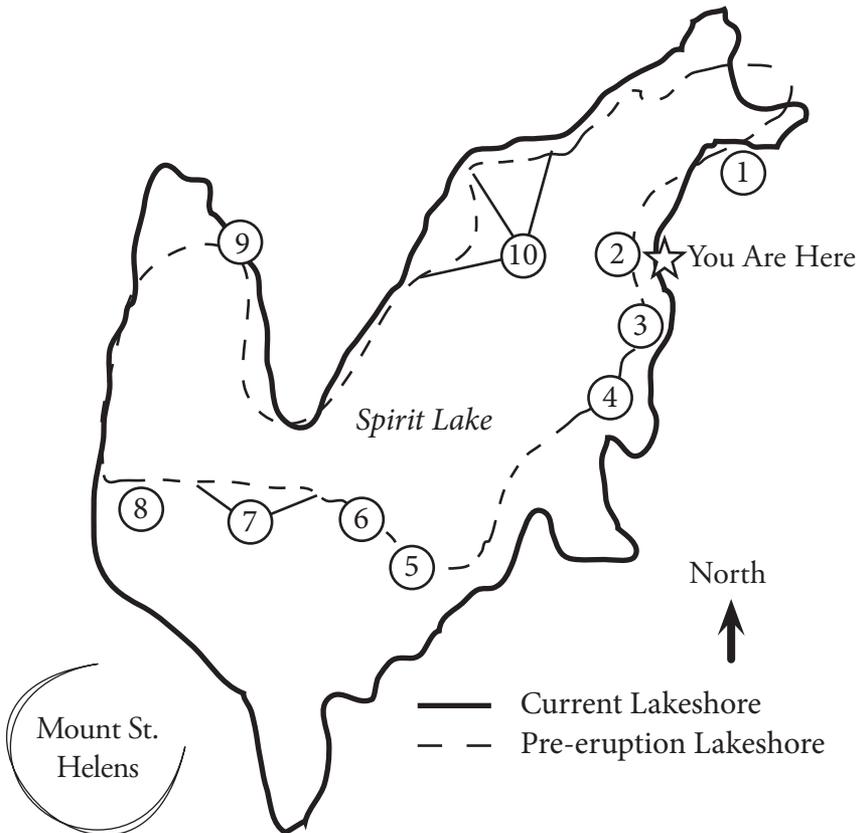
As you stroll to the next stop near where Harmony Falls Lodge was located, imagine what it must have been like to watch the evening sunset and the last light fading from Mount St. Helens from the lodge's deck.



5

The Pre-Eruption Camps, Campgrounds & Lodges of Spirit Lake

1. Portland YMCA Camp
2. Harmony Falls Lodge
3. Cedar Creek Campground
4. Donnybrook Campground
5. Episcopal Church Camp
6. Forest Service Administrative Site
7. Spirit Lake Ranger Station & Campground
8. Mount St. Helens Lodge
9. Bear Cove Campground (primitive)
10. YMCA, Boy Scout and Girl Scout Camps



6

Memories of Harmony Falls Lodge Linger

Two hundred feet beneath the lake below you, lies the Harmony Falls Lodge. The lodge was built in 1931 and owned and operated by Jack and Tressa Nelson and Jack's sister Ruby until the 1960s. The lodge was a favorite of many. It welcomed guests to the tranquility of an old-growth forest and a lovely waterfall that cascaded more than 100 feet.



A trip to Harmony Falls Lodge meant getting away from everything. Guests arriving across the lake could hike a few miles or use an ancient hand-cranked telephone strung to a tree to announce their arrival. Jack Nelson would pilot a boat to retrieve the guests, load their bags and ferry them across the lake to views of Mount St. Helens' stunning white glaciers and towering evergreens.

Eleven cabins with wood stoves, oil lamps, creaky beds and mesmerizing views of Mount St. Helens offered an unmatched rustic charm. Names like The Look Out, Harmony Hums and The Eagle's Nest revealed a glimpse of the cabins' unique character. While some cabins had kitchens, most dined on Ruby's legendary home-style meals.

Today, Harmony Falls Lodge lies buried and eventually its memories will fade. Today, you are the guests to this new and special place—here to create your own memories and to experience a completely new Spirit Lake.

Ponder as You Wander:

How could anything have survived a landslide, blast and tsunami at Spirit Lake?



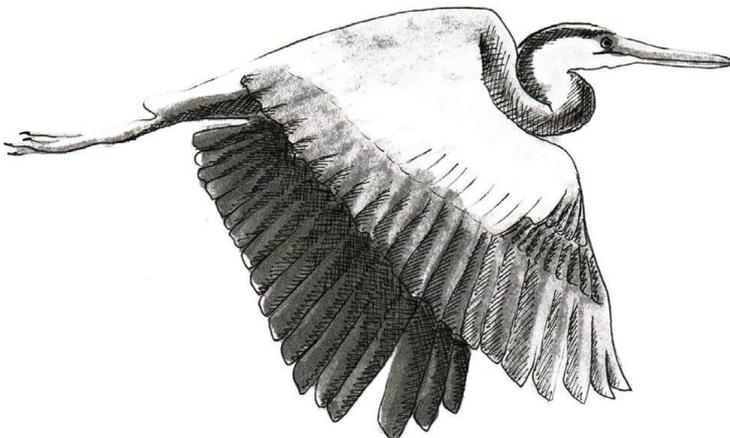
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Spirit Lake's Remarkable

Immediately after the eruption, news of the demise of Spirit Lake was reported, yet the lake never disappeared. After the eruption its muddy brown water was covered with logs and blended in with the surrounding gray landscape. Incredibly, Spirit Lake actually grew in size. When the tsunami-like wave receded from the surrounding hillsides, it sloshed back into a debris-filled basin and a new, higher lake bed. As a result, Spirit Lake's surface is 200 feet higher than before the eruption and the lake doubled in size.

Prior to the eruption, Spirit Lake was a typical mountain lake with cold, clear water; low in nutrients, with few species and little biological productivity.

On May 18, 1980, a massive landslide slammed into the lake killing almost everything. Superheated pyroclastic flows consisting of hot pumice and ash entered the lake. By late in the afternoon the lake was filled with hot, sediment-laden, water where, scientists believed, only bacteria thrived.



Transformation and Recovery

After the eruption, Spirit Lake went through an amazing transformation. In the summer of 1980, nutrients from the shattered forest entered the lake providing a feast for bacteria. Like a giant tea bag, massive amounts of dissolved nutrients from the blown-down forest flowed into the lake, creating a microbial soup with levels of microbial activity rarely encountered in a natural system.

As snowmelt and rainfall diluted the nutrient-rich water, it began to clear. Bacteria processed the nutrients and oxygen was stirred into the lake by wind and waves.

Today, there are two distinct biological zones in Spirit Lake. Deeper water areas are typical of a mountain lake with cold, clear water, little biological productivity and few nutrients and species. In contrast, are shallow water zones where nutrients are abundant, algae blooms in the sunlight and amphibians, snails and other creatures flourish.

Ponder as You Wander:

As you return to the trailhead, see if you can spot evidence of the 1980 landslide and blast. Take a moment to pause and contemplate the enormous change that has taken place and is continuing to take place in this amazing natural laboratory.





Pondering the Plants along the Way

As you head down the trail from the parking lot, watch for forest plants like the avalanche lily that survived under snow banks on the shady, north-facing slope. Surviving understory plants are tucked under a dense thicket of Sitka alder, a hardy shrub that thrives on steep, avalanche-prone slopes like this one.

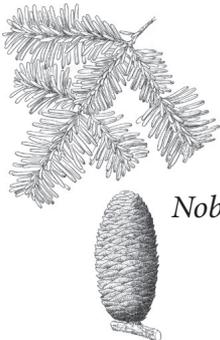


Avalanche lilly



Sitka Alder

Since 1980, plant survivors have been joined by pioneering colonizers like noble fir and Douglas fir that are forming a new forest.



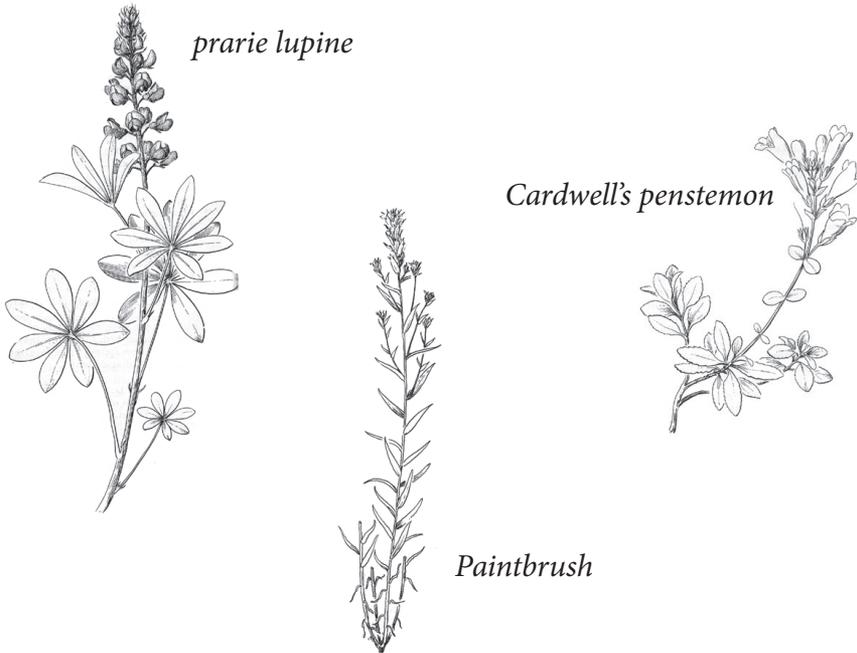
Noble fir

Douglas fir



As you descend to the valley floor you'll cross an area of thick volcanic deposits that were deposited when the massive wave created by the landslide washed back into Spirit Lake.

Watch for hardy subalpine plants like prairie lupine, Cardwell's penstemon and common red paintbrush that are successfully colonizing volcanic deposits throughout the blast zone.



Spirit Lake is an important part of the unique natural laboratory that is Mount St. Helens. Scientists and fisheries managers are collaborating to study the development of life in a lake that was completely transformed following the 1980 eruption. Nutrients from the massive landslide deposit and surrounding blast-shattered forest transformed the lake into a bacterial stew bubbling with carbon dioxide and methane. Since 1980 the lake has undergone an amazing recovery that has been documented through long-term studies. To protect the natural recovery process and ongoing research the lake is closed to fishing and access is restricted to the shoreline at the bottom of the Harmony Trail.



Help prevent Mount St. Helens from

What is a noxious weed?

A noxious weed is defined as, “an introduced, invasive plant that is not valued where it is growing, grows vigorously and tends to outgrow or choke out more desirable native plants.”

How Can I Help Prevent the Spread of Noxious Weeds?

Don't Give 'em a Ride

Before leaving and traveling to a new area:

- *Brush your footwear and clothing clean of caked-on soil and seeds.*
- *Brush and shake seeds out of your tent, camp chairs and sleeping bags.*
- *Brush or wash your animals.*
- *Clean your car's undercarriage and tires.*



The participation of concerned hikers, campers and sportsmen is an important part of this effort. To find out how you can help, visit the Get Involved pages at mshinstitute.org or contact us at info@mshinstitute.org



Scotch Broom
(*Cytisus scoparius*)



Herb Robert
(*Geranium robertianum*)

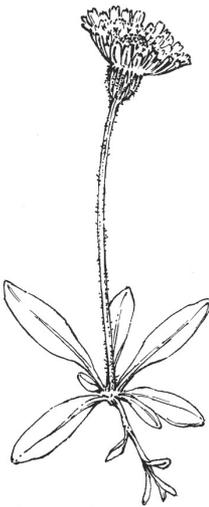
being overrun by Noxious Weeds

The US Forest Service, collaborating state and local agencies and dedicated volunteers are working hard to protect this special place. Given the size of the area and abundance of noxious weeds, we have to prioritize which weed species to control and areas to treat.

Efforts are being focused on areas closest to visitor facilities and trails and weeds that pose the greatest threat to native plants and wildlife. We're taking care to use control methods that are both effective and have the least chance of harming native plants and the surrounding environment. Treatments include hand cutting and pulling; cutting and daubing stems with herbicides; and spot-spraying.

The noxious weeds of greatest concern are capable of:

- *spreading rapidly by underground stems and abundant seed*
- *inhibiting the establishment and growth of native species*
- *reducing forage for wildlife and decreasing forest diversity*



Mouse ear hawkweed
(*Hieracium pilosella*)



Spotted Knapweed
(*Centaurea maculosa*)



Suggested Donation: \$2

Reprinting of this brochure is made possible by your generous donation.



Founded in 1996 by people passionate about Mount St. Helens, the Mount St. Helens Institute is a 501(c) (3) private, nonprofit organization devoted to helping people understand and protect the volcano.

The Institute believes that this special landscape deserves support through education, research and stewardship. The Mount St. Helens Institute is an equal opportunity employer and provider.

To find out more about Mount St. Helens and how you can get involved visit us at www.mshinstitute.org or call (360) 449-7833.



Discover Your Northwest promotes the discovery of Northwest public lands, enriches the experience of visitors, and encourages stewardship of these special places today and for generations to come. www.discovernw.org



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