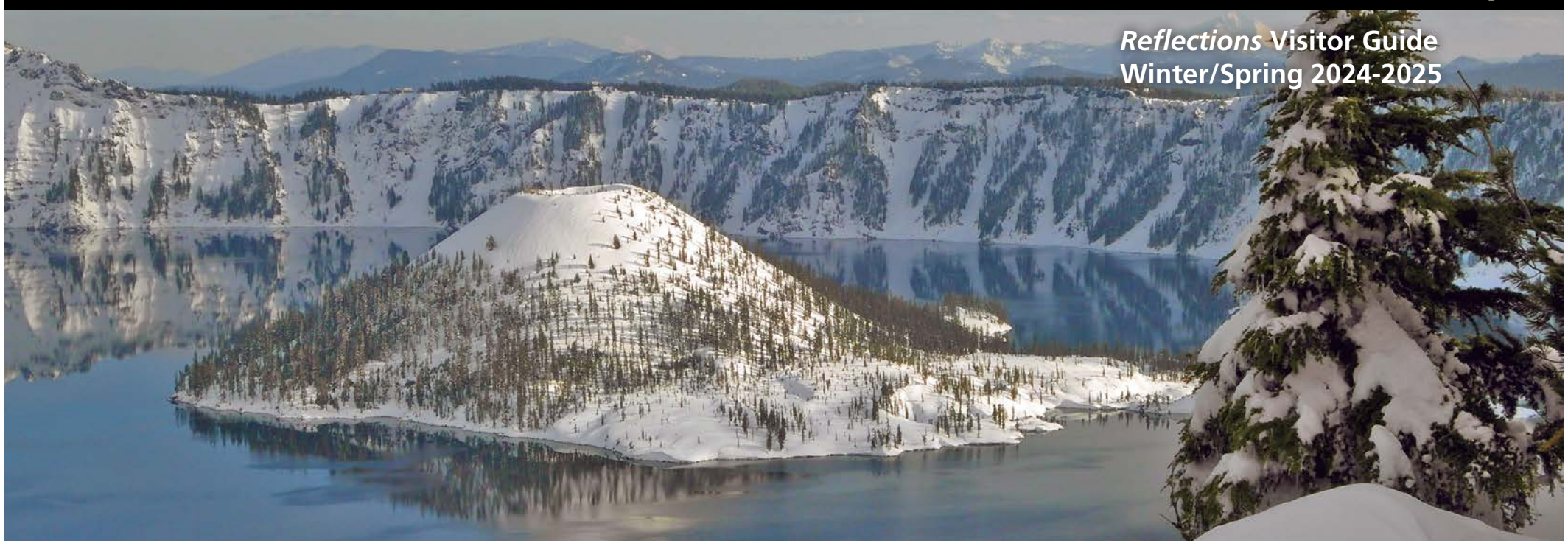
Crater Lake

Crater Lake National Park
National Park Service
U.S. Department of the Interior



Reflections Visitor Guide
Winter/Spring 2024-2025

Rotary Plow at Rim Village

Keeping the Park Open is "Snow" Easy Task

What were you doing at 4 am this morning? If you were a member of the Crater Lake roads crew, you might have been reporting for duty!

Trying to keep Highway 62 and the road to Rim Village open year-round is no easy task. The park's heavy equipment operators typically start before dawn—and sometimes work late into the night—clearing snow and sanding roads. "It can be a hazardous job," reports one operator, "especially when it's dark and white-out conditions are occurring. On a winding mountain road, you never know what's around the next corner. It could be a tree across the road at windshield level, a car stuck in the snow, or an avalanche." *(continued on back page)*

Snowshoe with a Ranger

Ranger-led snowshoe walks are a fun way to experience the park in winter. They take place on Saturdays, Sundays, and holidays from late November through April, and on weekdays during Winter Break (December 23-January 3) and Spring Break (March 24-28). There is no cost for the tour, and snowshoes are provided free of charge.

The walks start at 1 pm, last 2 hours, and are moderate-to-strenuous in difficulty. Participants must be at least 8 years old and have warm clothing and footwear. Most walks begin at Rim Village and explore the forests and meadows along the rim of the caldera. Along the way, participants discover how winter affects Crater Lake and the park's plants and animals.

Space on each tour is limited, and advance reservations are recommended. To sign up, stop by the Steel Visitor Center or call 541-594-3100. Organized groups of 10 or more people may be able to arrange for their own, separate walk (staff permitting).

A Winter Wonderland

But for How Much Longer?

Straddling the crest of the Cascade Mountain Range, Crater Lake National Park is one of the snowiest inhabited places in America. Storms from the Pacific Ocean dump an average of 42 feet of snow at Park Headquarters each winter and more than 50 feet at Rim Village. Since 1931, however, when rangers began keeping track, totals have been trending downward. Snowfall at Park Headquarters has been below average for 11 of the past 13 years.

Rangers use a giant ruler—21 feet tall—to measure snow depth at Park Headquarters. They have measured snow depth, snowfall, and precipitation at this location since 1931.

While the *amount* of precipitation the park receives hasn't changed much over time, the *type* of precipitation has. Warmer weather is causing a larger proportion of it to fall as rain. Snowfall has declined.

At first glance, milder winters might seem to be good news, since deep snow tends to make life difficult. Snow forces many animals, including deer and elk, to leave the park in order to survive. Snow makes it hard for park staff to keep roads plowed and facilities functioning. And, for park visitors, storms often lead to disappointment, hiding Crater Lake from view.

But consider the benefits that blizzards bring. A thick blanket of snow provides protection and warmth for "subnivean" mammals such as shrews, voles, and pikas. It serves as a water reservoir for the park's old-growth forests, insulating trees from drought and fire. It provides us with opportunities to ski, sled, snowshoe, and marvel at winter's beauty. And, since it eventually melts to feed the Rogue, Umpqua, and Klamath rivers, snow at Crater Lake is good news for downstream farmers, ranchers, cities, and wildlife.

Unfortunately, declining snowfall in the winter is having negative consequences in the summer. It's leading to longer and more severe fire seasons, a rise in insect epidemics and invasive species, and hardship for native plants and animals, as they struggle to survive in a climate to which they're not adapted. So, despite the challenges that long and snowy winters impose on the park, they are ultimately a cause for gratitude, delight, and celebration. Let it snow—please!

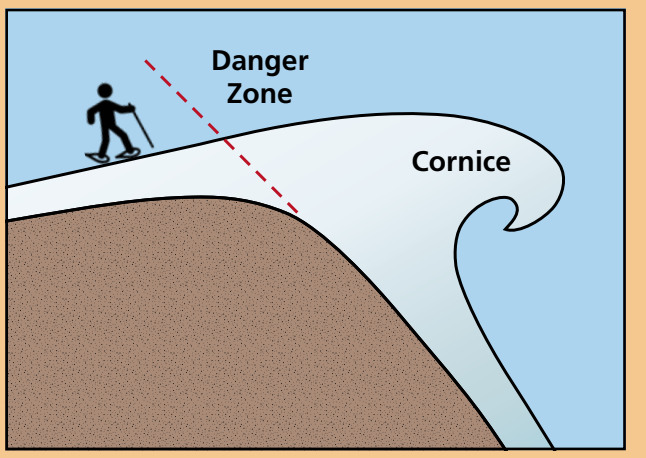
Average Annual Snowfall at Park Headquarters, by Decade:

1930s – 614 inches
1940s – 623 inches
1950s – 572 inches
1960s – 507 inches
1970s – 495 inches
1980s – 475 inches
1990s – 493 inches
2000s – 455 inches
Since 2010 – 421 in.

Caution! Heavy Snowfall Creates Deadly Hazards

Roofalanche at Park Headquarters

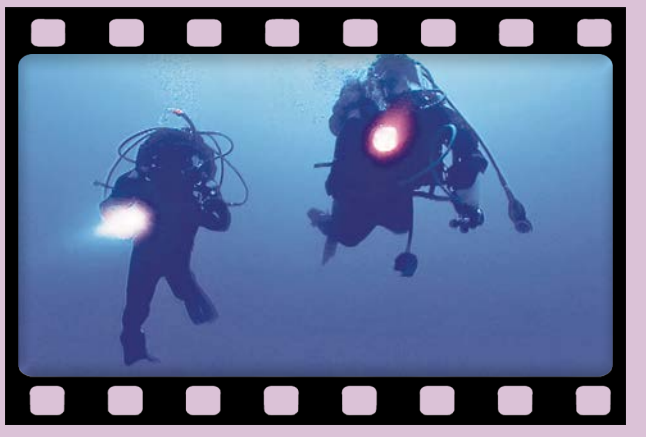
For your safety, keep away from snow-covered buildings. A "roofalanche" (roof avalanche) can happen without warning, sending heavy blocks of snow and ice across a wide area.



Stay back from the edge of the caldera! Unstable ledges of snow, called cornices, extend beyond the rim. Traveling onto a cornice can cause it to collapse, triggering a deadly avalanche.

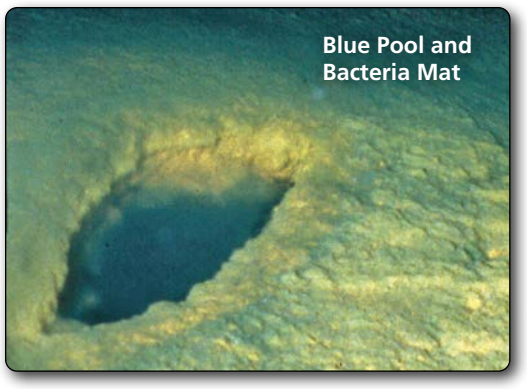
Watch the Park Film

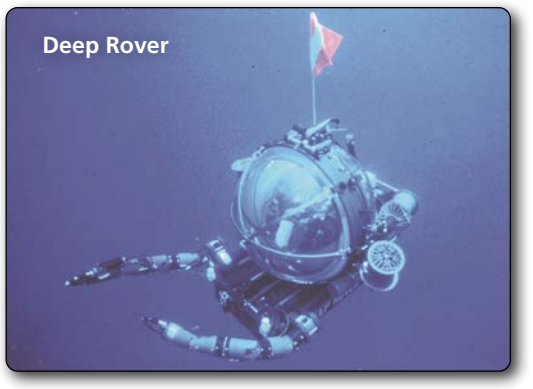
Curious to learn more about Crater Lake? Stop by the Steel Visitor Center to watch the park's 22-minute film, shown on request throughout the day. The film explores the park's significance and the wonder that Crater Lake has inspired for generations. Entitled *Crater Lake: Into the Deep*, it includes dramatic underwater footage along with state-of-the-art animation that depicts the lake's violent, volcanic past.




Rough-Skinned Newt


Moss


Blue Pool and Bacteria Mat


Deep Rover

Ask the Ranger

How deep is Crater Lake?
Crater Lake is 1,943 feet deep. It's the deepest lake in the USA—300 feet deeper than Lake Tahoe, which ranks second. Crater Lake is the deepest lake in the world formed by volcanic activity.

Where does the water come from?
About 83% of the water comes from rain and snow falling directly on the surface. The rest is runoff from precipitation landing on the slopes above the lake.

How clean & clear is the lake?
Since there are no inlets carrying sediment or pollution into Crater Lake, its water is very clean: cleaner than the water that comes out of your faucet at home!

When an 8-inch-wide instrument called a Secchi disk is lowered into the lake, the average depth at which it disappears is 103 feet. Some days, clarity readings exceed 130 feet.

Does the surface freeze?
Crater Lake has not frozen over completely since 1949. Ice thick enough to support the accumulation of snow rarely forms on the lake, except during the coldest of winters. The lake contains a tremendous volume of water (5 trillion gallons) relative to its surface area (21 square miles).

Does the water level vary?
The level of Crater Lake fluctuates just a few feet each year. Winter storms make it rise a little; dry summers cause it to fall. The lake experiences about twice as much precipitation as evaporation, but the surface remains far below the rim because water continuously seeps out through a porous layer of rock along the north shore. Crater Lake is just like your bathtub—halfway up the side, there's a drain! Water leaks from the lake at a rate of 2 million gallons every hour. It goes deep underground and is not believed to feed any nearby rivers or springs.

How did Crater Lake form?
Crater Lake occupies the shell of Mount Mazama, a dormant volcano. The volcano once stood 12,000 feet tall, but its summit imploded after a major eruption 7,700 years ago. The event was witnessed by local Native Americans and was probably the most powerful North American eruption of the past 640,000 years. Wizard Island is a product of subsequent eruptions—it's a cinder-cone volcano that emerged from the lake around 7,300 years ago.

Does anything live in the lake?
Crater Lake is home to a variety of insects, worms, snails, crustaceans, and amphibians, including a type of salamander found nowhere else in the world (the Mazama newt, a proposed subspecies of the rough-skinned newt). Most of the lake's biomass, however, is plant-based: aquatic moss covers the floor at depths of 80 to 460 feet. Nowhere else in the world does moss grow so deep underwater, a testament to Crater Lake's clarity and transparency to sunlight.

Are there fish in the lake?
Crater Lake had no fish until it was stocked for fishing between 1888 and 1941. Six species were introduced, but only two have survived: rainbow trout and kokanee salmon. In 1915, crayfish were also added to the lake, as trout food. Recently, their population has exploded: crayfish now dominate 90% of the shoreline, and they've been found living at depths of up to 800 feet. Like miniature vacuum cleaners, they eat everything in their path, reducing the abundance and diversity of native organisms. Sadly, crayfish are swiftly pushing the lake's native newts toward extinction.

Has the lake floor been explored?
In the 1980s, a one-person submarine called Deep Rover made 47 trips to the bottom of Crater Lake. There, researchers discovered hydrothermal springs and three types of surprising features: 30-foot-tall chimneys of rock precipitated from the upwelling fluids; blue-colored pools of high-density, mineral-rich water; and huge mats of yellow bacteria that survive in the dark by oxidizing iron for energy.

Climate Chart

Winters at Crater Lake are long and snowy, a result of the park's position at the crest of the Cascade Mountains. On average, Park Headquarters receives 42 feet of snow. In this chart, air temperature and snowfall averages are from Park HQ, 1931-2019. Water temperatures are from 1965-2019.

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Average Daily High (°F)	34	35	37	42	50	58	69	69	63	52	40	34
Average Daily Low (°F)	18	18	19	23	29	34	41	41	37	31	24	19
Average Snowfall (inches)	100	81	83	45	19	4	0.2	0.1	3	21	61	93
Avg. Snow Depth (inches)	78	100	115	110	75	23	1	0	0	2	16	47
Avg. Lake Surface Temp. (°F)	39	38	37	38	40	47	57	60	57	51	44	40

Support Your Park


Steel Visitor Center


This red fox was spotted by a park visitor. Red foxes are not always red; most at Crater Lake are silver to black.

Volunteer Rangers

Shop at the Park Store
When you shop at the Steel Visitor Center, all proceeds from your purchase are invested back into the park. The store is operated by the Crater Lake Natural History Association, a nonprofit partner of the National Park Service that supports the park's educational and scientific programs. Many important projects are funded by the Crater Lake NHA, including the printing of this visitor guide! The store offers a wide range of books and gifts, as well as Junior Ranger products for kids. You can also shop online at www.craterlakeoregon.org.

Report Your Wildlife Sightings
If you spot any interesting animals during your visit or witness unusual behavior, please let us know! Your observations will help us learn which animals live in the park and how they use it. Species reported recently include the sooty grouse, western skink, mountain lion, short-tailed weasel, and black-tailed bumble bee. To share your sighting, email craterlake@nps.gov. Let us know the date and location of your encounter, a detailed description of what you saw, and your name and contact info, in case we have questions. And if you captured any photos, send them along. Photographic evidence can be very important in confirming the identity of some species. Just remember that approaching, feeding, or disturbing wildlife is prohibited—so please keep your distance. Thanks for your help!

Buy Crater Lake License Plates
If you live in Oregon, consider choosing Crater Lake license plates for your vehicle. For a one-time charge of $30, you can outfit your car with these beautiful plates while supporting park projects. You can purchase them at any time, not just when buying a new vehicle or renewing your registration. Visit any DMV office or www.oregon.gov/odot/dmv for details. Proceeds go into an endowment that funds the operation of the park's Science and Learning Center, which provides living and working space for visiting scientists, teachers, and artists. For more information, visit go.nps.gov/slc.

Contribute to the Crater Lake Trust
The nonprofit Crater Lake National Park Trust raises private funds to support park projects and connect the park with surrounding communities. Share your love of the park by making a tax-deductible gift. Learn more at www.craterlaketrust.org.

Volunteer Your Time
Looking for a hands-on way to help the park? Consider sharing your time and talents as a Crater Lake VIP (Volunteer-In-Parks). Full-time volunteers are needed to help staff visitor centers, present interpretive programs, and perform PSAR (preventive search and rescue). Opportunities are advertised several times each year at www.volunteer.gov. Volunteers are provided free housing in exchange for 3 months of service. To volunteer periodically, join The Friends of Crater Lake, a nonprofit whose members help with special events and operate a winter information desk at Rim Village. Learn more at www.friendsofcraterlake.org.

Share Your Comments
Whether you have a compliment, concern, or suggestion, we'd like to hear from you! This is your park, and we value your input on how best to manage it. To provide feedback, send an email or letter to the park's superintendent *(see addresses on page 2)*.

Keeping the Park Open
(continued from page 1)

Snow plows were first used at Crater Lake in 1930. Prior to that, crews used dynamite and shovels to clear the roads each spring. Today, the park employs 6 operators and 2 mechanics who maintain an assortment of push plows and rotary plows. The rotary plows are equipped with a fan that can shoot snow 75 feet into the air. To control where the snow lands, the operator can vary the angle of output. The amount of snow moved each winter by the park's roads crew is astounding. With it, you could create a ski trail 3 feet wide, 6 inches deep, and long enough to circle the Earth at the equator!

The most challenging part of the job is "Spring Opening," when the operators turn their attention to digging out the 30-mile Rim Drive and 9-mile North Entrance Road. They start with the West Rim Drive, departing Rim Village sometime in April. Typically, the snow they encounter is 20 to 30 feet deep. Near Watchman Peak, they meet drifts up to 50 feet thick. Progress is slow, averaging a quarter-mile of road cleared per day. In a light snow year, they'll reach the park's North Entrance by mid-May. After a severe winter, it will take until mid-June. The East Rim Drive is their final leg. "If we can get all the way around the lake by the 4th of July," says one operator, "we're happy."

For your safety, when you encounter a snow plow in the park, give it a wide berth. Passing one on the park's narrow roads can be hazardous. Wait until an intersection or until the plow stops and the operator waves you by. Until then, assume that the operator can't see you; visibility inside the plows can be poor. Also, skiers and pedestrians should be careful to keep away from the dangerous cascade of snow thrown by the rotary plows.

Thanks to the hard work, long hours, and dedication of the park's heavy equipment operators and mechanics, we can access and enjoy Crater Lake National Park every month of the year.