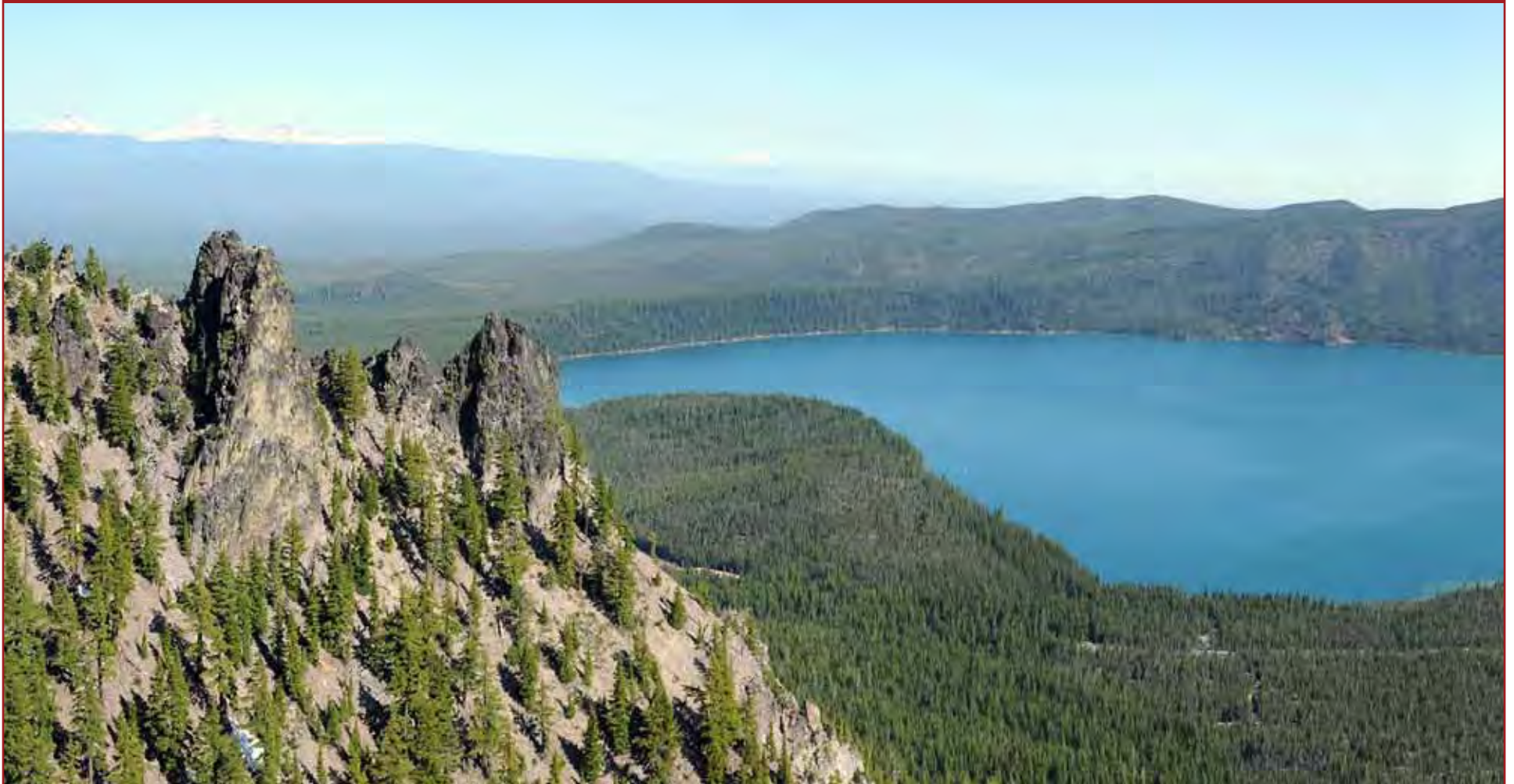


Volcanic Vistas

Guide to Newberry National Volcanic Monument



View to the north across Newberry National Volcanic Monument from Paulina Peak on Newberry Volcano. Community concern for the preservation of the area led to the establishment of the Monument in 1990. The Deschutes National Forest manages the Monument to preserve and protect the area's unique geologic and ecological resources. The exceptional scenic and recreational opportunities cover 50,000 acres. Photo: Lee Schaefer



Newberry National Volcanic Monument

Points of Interest

Lava Lands Vicinity (pages 6, 7 and 8)

One Hour: Lava Lands Visitor Center, Trail of the Molten Land or Lava Butte

Two Hours: Add a visit to Lava River Cave

Half Day: Add a visit to Lava Cast Forest

All Day: Add a trip to Newberry Caldera

Newberry Caldera (pages 4,5 and 8)

One Hour: Big Obsidian Flow

Two Hours: Add Paulina Peak

Half Day: Hike Paulina Lake Trail

Multiple Days: Camp in the Caldera

Useful Contacts

EMERGENCY	911
Deschutes County Sheriff (non-emerg): http://sheriff.deschutes.org	541-693-6911
Newberry National Volcanic Monument: www.fs.usda.gov/goto/centraloregon/nnvm	
Lava Lands Visitor Center	541-593-2421
Monument Information Hotline	541-383-4055
Discover Your Northwest: www.discovernw.org/deschutes	206-220-4140
Deschutes National Forest: www.fs.usda.gov/centraloregon	541-383-5300
Bend Fort Rock Ranger District	541-383-4000
Oregon Department of Fish and Wildlife: www.dfw.state.or.us/	800-720-6339
ODOT Road Conditions: www.tripcheck.com/	511
National Weather Service www.weather.gov/	Enter Bend or La Pine, Oregon



Volcanic Vistas is produced by
Discover Your Northwest in partnership with the Deschutes National Forest.

Published May 2011



WELCOME

On behalf of the of the Bend - Fort Rock Ranger District of the Deschutes National Forest, we welcome you to the 50,000 acre Newberry National Volcanic Monument. Set on the awe inspiring Newberry Volcano, the Monument offers countless unique recreational opportunities and awesome scenic views which take you into the heart of one of the most intriguing volcanoes in the Northwest.

This year marks the 20-year anniversary of the dedication of Newberry as a National Monument. We encourage you to celebrate this 20th season by slowing down and truly engaging with all that this extraordinary Monument has to offer you.

Whether you choose to experience Newberry by car, boat, horse, bike, RV, or boots, consider taking the time to learn about this unique volcanic landscape, the wildlife, and the rich history of Newberry at one of our visitor centers or by enjoying one of our many interpretive tours, talks and trails.



Please consider that the choices you make while traveling and camping on public lands can leave an impression. To ensure that impression on the land and those around you is positive, please -- practice the Leave No Trace techniques highlighted in the pages to follow.

We truly hope you enjoy your visit.

Sincerely,
Scott E. McBride, Monument Manager
Elizabeth Wasserman, Deputy Manager

For more information on Newberry National Volcanic Monument go to:
www.fs.usda.gov/goto/centraloregon/nsvm

NEWBERRY VOLCANO

What's in a name?

Throughout this publication you will see Newberry referred to as a volcano, a crater and a caldera.

Newberry Volcano is a shield-shaped volcanic complex covering over 1,200 square miles, an area the size of Rhode Island. Lava flows from Newberry extend north beyond Redmond, Oregon.

Newberry caldera is a 17 square mile basin within Newberry Volcano that formed around 75,000 years ago during an explosive eruption that caused the summit of the volcano to collapse in on itself. The city of Bend could fit inside the caldera.

The caldera has been a destination point for geologists and recreational enthusiasts for generations and is fondly referred to as both Newberry Crater and Newberry Caldera. Whatever you choose to call it, Newberry's two crystal blue lakes, miles of trails, and unparalleled volcanic features like the Big Obsidian Flow make it a great place to recreate and learn about the wonders of the Earth.

Caring Citizens Created the Monument

Interview with Dr. Stu Garret

As we recognize the 20th Anniversary of the designation of Newberry Volcano as a National Monument, we visited with Dr. Stuart Garrett, who served as Chairman the Citizen Committee that led the effort to get Newberry designated as a National Monument. About 30 citizens initiated the process by meeting with local communities to develop a shared vision for Newberry Volcano prior to the designation and then pursued the National Monument designation until it was completed.

Why did you, and others, work so hard to protect Newberry Crater? What inspired you to engage in its protection?

It became apparent to a number of us that really appreciated Newberry Crater for its naturalness and fishing that there was a lot of interest in geothermal energy and private development in the crater. We tried to figure out a way to protect the area but not preclude geothermal development. We wanted to work with both the local community and geothermal interests. We decided that pursuing a National Monument designation was the best way.

My interest began when I took geology classes at Central Oregon Community College and was introduced to the fascinating world of Newberry Crater. I also enjoyed the great hiking, camping, and fishing in the area.

What was the original vision for Newberry National Volcanic Monument? What do you hope visitors will say about it on its 100th anniversary?

The monument has met the goals that we wanted for it. It has provided a high level of protection of the natural values and has been well-received within the community. If you look at the economic input of recreation and tourism at NNVM over the past 20 years, it has generated millions of dollars.

We didn't want to turn it into Disneyland, we wanted to preserve its naturalness. I think the Deschutes National Forest has done a good job of keeping it natural.

I would hope that people would say there were some wise people in the 1980s who worked hard to preserve it. I would hope that people would still enjoy its geologic wonders, plants, and wildlife.

What would you tell a first-time visitor to the monument to excite their interest and support for the monument?

Well, I would tell them it is much more exciting place than Crater Lake because it is not filled with water. You can walk through a variety of geologic flows, go to the lakes, snowmobile, cross-country ski, hike in the woods, ride a bike, and there is a huge potential for solitude.



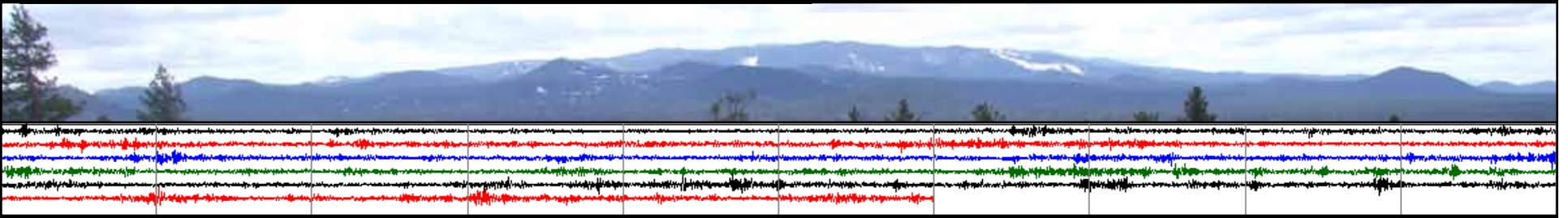
If you look at Newberry Volcano as a whole, it is the biggest volcano in the state of Oregon. For the National Monument designation we picked out the highlights, Lava Butte, Newberry Crater, and a wide ecological slice of the area. All portions that we chose for the designation, is what we picked for the public to appreciate and enjoy.

How do you think people can best take part in preserving the remarkable resources of the monument?

I think that those visiting it should take only pictures and leave only footprints. I think people have mostly done a good job of taking care of the area and there hasn't been too many abusive activities. There are some places that are just precious enough, like Newberry. It is a functioning ecological resource and when people go into it they find serenity. Like when they are sitting by a stream or in a forest. As we become more urbanized and industrial, places like Newberry are going to become more important and precious.



Taking the Pulse of Newbery Volcano



Newbery Volcano viewed from the north. Seismic data below photo is from the lone monitor on Newbery operated by the Pacific Northwest Seismic Network.

This summer the U.S. Geological Survey's (USGS) Cascades Volcano Observatory (CVO) plans to install eight long-term volcano monitoring stations at Newbery Volcano. A 2004 USGS assessment of monitoring networks at 13 major Cascade volcanic centers, found Newbery to be one of the volcanoes "most in need" of additional monitoring.

Two factors contribute to Newbery's status as hazardous—its relatively recent eruptive activity (the 1300 year old Big Obsidian Flow), and its proximity to human population centers. Currently, only one seismic station exists on Newbery Volcano. USGS considers a lone seismic station inadequate for providing timely warning of a volcano's reawakening.

At volcanoes such as Newbery, earthquakes and ground deformation can be symptoms of subsurface movements of magma, gas, and fluids. Often, volcanic reawakening can begin subtly, with many earthquakes of a magnitude less than 1.0, and with ground deformation measured in tiny fractions of an inch. Additional monitoring stations will provide

baseline data that improves scientists' ability to detect and interpret which movements are normal for the area, and which might indicate volcanic unrest. The idea is similar to your doctor having a baseline record of your vital signs, so that when one of those signs changes your doctor can interpret that change in your system and respond appropriately.

Each monitoring station features a seismometer buried in the ground and a GPS receiver. Seismometers are so sensitive that they can detect elk (or people) walking nearby, and the GPS instruments can detect ground motions of just a few millimeters. If you encounter a monitoring station during your hikes around Newbery, please do not disturb.



CVO monitoring stations similar to this one installed on Mt. Ranier are planned for Newbery Volcano. Photo: USGS/CVO

Data from the new monitoring stations will be displayed at websites of the USGS and the Pacific Northwest Seismic Network (PNSN). Digital information from the lone currently operating seismic station on Newbery is viewable as a webcorder image on the Pacific Northwest Seismic Network (PNSN) webpage: http://www.pnsn.org/WEBICORDER/VOLC/NCO_SHZ_UW_-_current.html

Learn more about webcorders: <http://www.pnsn.org/WEBICORDER/webcorder.html>

Learn more about Newbery Volcano's history: <http://vulcan.wr.usgs.gov/Volcanoes/Newberry>

Protecting Lava River Cave Bats

Bats and White-Nose Syndrome

White-nose syndrome (WNS) is responsible for the death of over 1,000,000 hibernating bats in the eastern and midwestern U.S. since 2006. Although this new disease is still poorly understood, it is thought to be caused by a cold-loving fungus that thrives in caves and mines. Named for the white powder around the nose, the fungus can also appear on the ears, wings, and forearms or may not be visible at all. The fungus appears to cause bats to frequently wake up during winter hibernation using up fat reserves and water needed for winter survival. The fungus primarily spreads from bat-to-bat contact but may also be spread by humans on clothing or equipment used in caves or mines.

There is no known health risk to humans from WNS. However, the impacts to humans from the loss of bats may be great. Bats play a crucial role in the health of our ecosystem by consuming over half their body weight each night in insects including pest species. Nationally, scientists estimate annual economic losses of \$3.7 to \$53 billion dollars due to an increase in insect pests as a result of the high mortality of bats from WNS and wind powered turbines.

For more information on white-nose syndrome, bats, and cave conservation visit these websites:

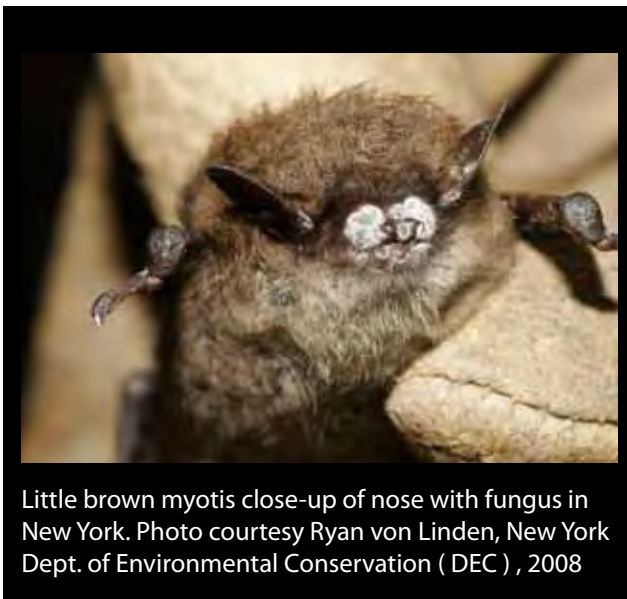
Deschutes National Forest <http://www.fs.fed.us/r6/centraloregon/>

National Speleological Society <http://www.caves.org>

U.S. Fish and Wildlife Service <http://www.fws.gov/WhiteNoseSyndrome/>

Oregon Department of Fish and Wildlife http://www.dfw.state.or.us/wildlife/living_with/bats.asp

Bat Conservation International <http://www.batcon.org/home/default.asp>



Little brown myotis close-up of nose with fungus in New York. Photo courtesy Ryan von Linden, New York Dept. of Environmental Conservation (DEC), 2008

The Deschutes National Forest

has over 350 caves. Many caves and mines on public lands in the midwest and eastern U.S. have been closed to visitors since 2008 to reduce the potential for spread of the spores and WNS. Please help us keep caves open in the West and protect bats by not wearing clothing, boots, or any gear in Lava River Cave that has been used in a cave or mine outside Oregon or Washington.

If you plan to visit another cave on or off the Forest please follow any information posted at that cave.

Visiting Lava River Cave?

Help keep Lava River Cave bats healthy by...

...visiting the WNS table at Lava River Cave and completing a registration form before you enter the cave.

...not wearing clothing, boots, or use any gear (headlamp, camera, fanny pack, etc.) in Lava River Cave that have been used in a cave or mine outside Oregon or Washington.

...limiting the amount of gear you bring into Lava River Cave.

...visiting the WNS table at Lava River Cave and complete a registration form before you enter the cave.

...disinfecting your clothing, boots, and gear worn in Lava River Cave before going in another cave on or off the Forest.



Healthy long-eared bat. Photo: Diane Probasco, USFS

Newberry Caldera

Caldera Visitor Services

Paulina Visitor Center June 23 - September 25
 Open Thursday - Sunday* 9:00am-5:00pm
 *also Monday July 4 and Monday September 5
 Offers DYNW bookstore, maps, and information.

Ranger Talks Thursday - Sunday

Big Obsidian Flow Talk 9:30am & 3:00pm

Guided tour of Oregon's youngest lava flow. Learn about the prehistoric and modern uses of this highly prized volcanic glass.

Paulina Peak 11:30am & 1:00pm

Join a ranger at the highest point in the Monument to learn about Newberry's volcanic history and potential future.

Campfire Talks 8:30pm

FRIDAY evenings at Cinder Hill Campground, East Lake
 SATURDAY evenings at Paulina Lake Campground, Paulina Lake

Sleep On a Volcano!

Camping in Newberry Caldera is managed by Hoodoo Recreation. Find out about camping options by contacting Hoodoo directly at:



Hoodoo Recreation
www.hoodoo.com
Reservations: (877) 444-6777
Information: (541) 338-7869

Lodging in Newberry Caldera is offered by the following businesses:

East Lake Resort
www.eastlakeresort.com
 541-536-2230

Paulina Lake Lodge:
www.paulinalakelodge.com
 541-536-2240

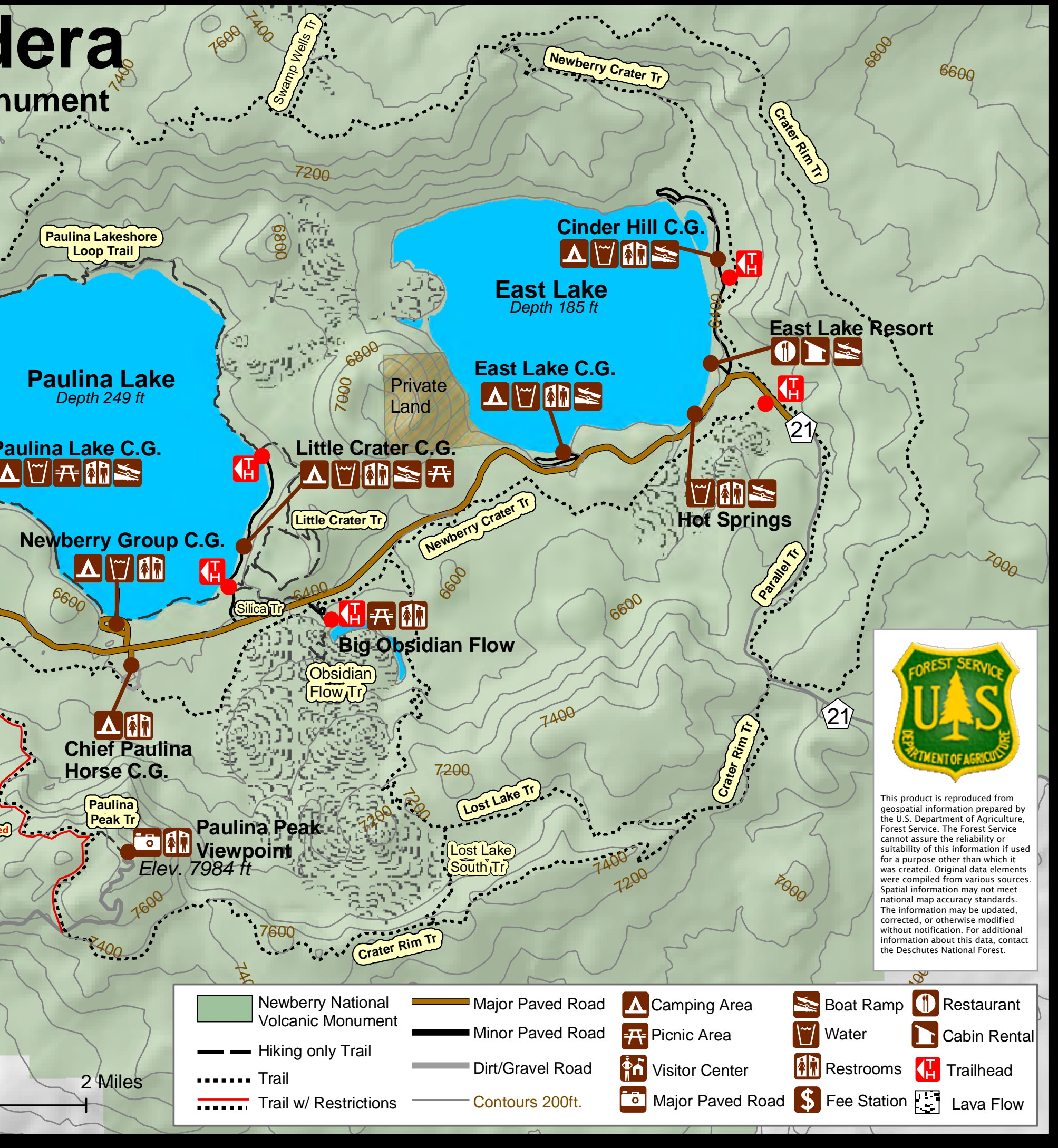
All Newberry Caldera trails are *Non-Motorized*.
Please control and clean up after your dog.



Newberry Caldera Trails	Miles One Way	Elev Change	Use	Difficulty
Crater Rim Trail #3957	20	6330-7600 feet	hike,bike,horse	difficult
Obsidian Flow Trail # 3958.1	0.5	6330-6850 feet	hike only	easy
Little Crater Trail # 3953	1.5	6330-6850 feet	hike only	moderate
Little Crater Tie	0.6		hike only	moderate
Lost Lake Trail # 3958.2/3958.4	3.9 + 0.6	7100-7440 feet	hike, bike, horse	difficult
Newberry Crater Trail #3958	9.2	6350-7300 feet	hike, bike, horse	moderate



Caldera Monument




This product is reproduced from geospatial information prepared by the U.S. Department of Agriculture, Forest Service. The Forest Service cannot assure the reliability or suitability of this information if used for a purpose other than which it was created. Original data elements were compiled from various sources. Spatial information may not meet national map accuracy standards. The information may be updated, corrected, or otherwise modified without notification. For additional information about this data, contact the Deschutes National Forest.

Newberry National Volcanic Monument	Major Paved Road	Camping Area	Boat Ramp	Restaurant
Hiking only Trail	Minor Paved Road	Picnic Area	Water	Cabin Rental
Trail	Dirt/Gravel Road	Visitor Center	Restrooms	Trailhead
Trail w/ Restrictions	Contours 200ft.	Major Paved Road	Fee Station	Lava Flow

Newberry Caldera Trails	Miles One Way	Elev Change	Use	Difficulty
Parallel Trail #3958.3	2	6450-7000 feet	hike, bike, horse	moderate
Paulina Falls Trail #3957	0.5	6120-6280 feet	hike only	easy
Paulina Lakeshore Loop #3955	7.5	6330-6560 feet	hike only	moderate
Paulina Peak Trail #3957	0.25		hike only	moderate
Peter Skene Ogden Trail # 3956	8.6	4300-6350 feet	hike, horse, bike	moderate
Silica Trail # 3958.5	0.5	6350-6365 feet	hike only	moderate

Visitor Services

LAVA LANDS VISITOR CENTER



OPEN 9:00am to 5:00pm

Thursday-Monday 5/19 - 6/30

DAILY 7/1 - 9/5

Thursday-Monday 9/8 - 10/10

Drive to the top of **Lava Butte**: paved 1.75 miles

Walk the **Lava Butte Rim Trail**: unpaved 0.25 mile loop
Panoramic view of Newberry National Volcanic Monument and surrounding area.

Walk the **Trail of the Molten Land**: paved 0.75 mile loop
Signs interpreting the volcanic features provide for a self-guided tour. The existing trail is paved and is wide enough for barrier-free use, but has grades that may be difficult without assistance.

Walk the **Trail of Whispering Pines**: paved 1/3 mile
Follow the edge of the Lava Butte flow as it winds through the shady whispering pines. Interpretive signs that discuss past logging practices, modern-day forest management.

Watch **films** at 10:30, 12:00, 2:00 and 3:30

Shop in the **Discover Your Northwest Bookstore**

Attend a **Ranger Talk or Walk**: 11:00am & 1:30pm

LAVA RIVER CAVE



OPEN 9:00am to 5:00pm

Daily 7/1 - 9/5

Thursday-Monday 9/8 - 30

Help keep Lava River Cave bats healthy by visiting the White-nose Syndrome table at Lava River Cave and completing registration form before you enter the cave. See page 3 of this publication for more information White-nose Syndrome.

Wear warm clothing and carry at least two light sources (only propane lanterns or flashlights please). Lanterns are available to rent from Discover Your Northwest at the site. Lantern rental \$5.00.

Only certified service dogs are allowed in the Cave provided a container is carried in to remove waste.

Cave Conservation Tours 10:00am & 3:00pm (Daily)
Guided tour focusing on cave geology, ecology and stewardship. Take a close look at sand gardens, lavacicles, and other geologic formations while searching for sign of the Bushy-tailed Woodrat and Townsend's Big Eared Bat.



Discover Your Northwest

Discover Your Northwest (DYNW) is a nonprofit organization dedicated to promoting the discovery of northwest public lands, enriching the experience of visitors, and building community stewardship of these special places today and for generations to come. As you explore the area, please support our work by visiting our stores at the following sites throughout the Deschutes and Ochoco National Forests:

Lava Lands Visitor Center
Lava River Cave
Paulina Visitor Center
Bend/Fort Rock Ranger District
Sisters Ranger District
Crescent Ranger District
Ochoco National Forest Office in Prineville
Deschutes National Forest Office in Bend

Proceeds from our retail operations are used to fund conservation education programs, publications, exhibits, guest speakers, events and other services designed to enhance your appreciation of the area. Become a member today and receive a 15% discount at DYNW locations on public lands throughout the Northwest.

For more information: www.discovernw.org 206-220-4140
Discover Your Northwest 164 Jackson Street Seattle, WA 98104



"Our work on the Deschutes National Forest is focused on helping the Forest Service reach its full potential in conservation education and interpretive programs through fundraising, visitor center management, and volunteer coordination."

Larry Berrin
DYNW Branch Director
NNVM Education Director

RECREATION PASSES are Required at designated day use sites on the Deschutes National Forest.

Passes accepted :

3-day Monument Pass*	\$10
National Forest Recreation Day Pass	\$5
Annual Northwest Forest Pass	\$30
Interagency Annual Pass	\$80
Interagency Senior Pass	\$10
Interagency Access Pass	FREE
WA & OR Rec Pass w/Interagency Annual	\$100



Passes are available at Forest Service offices throughout Washington and Oregon. *The 3-day Newberry National Volcanic Monument Pass is only sold at Lava Lands Visitor Center, Lava River Cave, and Newberry Welcome Stations and is good only for sites within the Monument.

Benefits: 95% of the revenue from Recreation Passes stays in the local area for facility maintenance, interpretive services, and ecosystem protection. These passes are your opportunity to care for our public lands and pass on your natural legacy. Thank You!

Ranger Talks are offered at Mt. Bachelor's Pine Marten Lodge by Deschutes National Forest Volunteers in partnership with Discover Your Northwest and Mt. Bachelor.

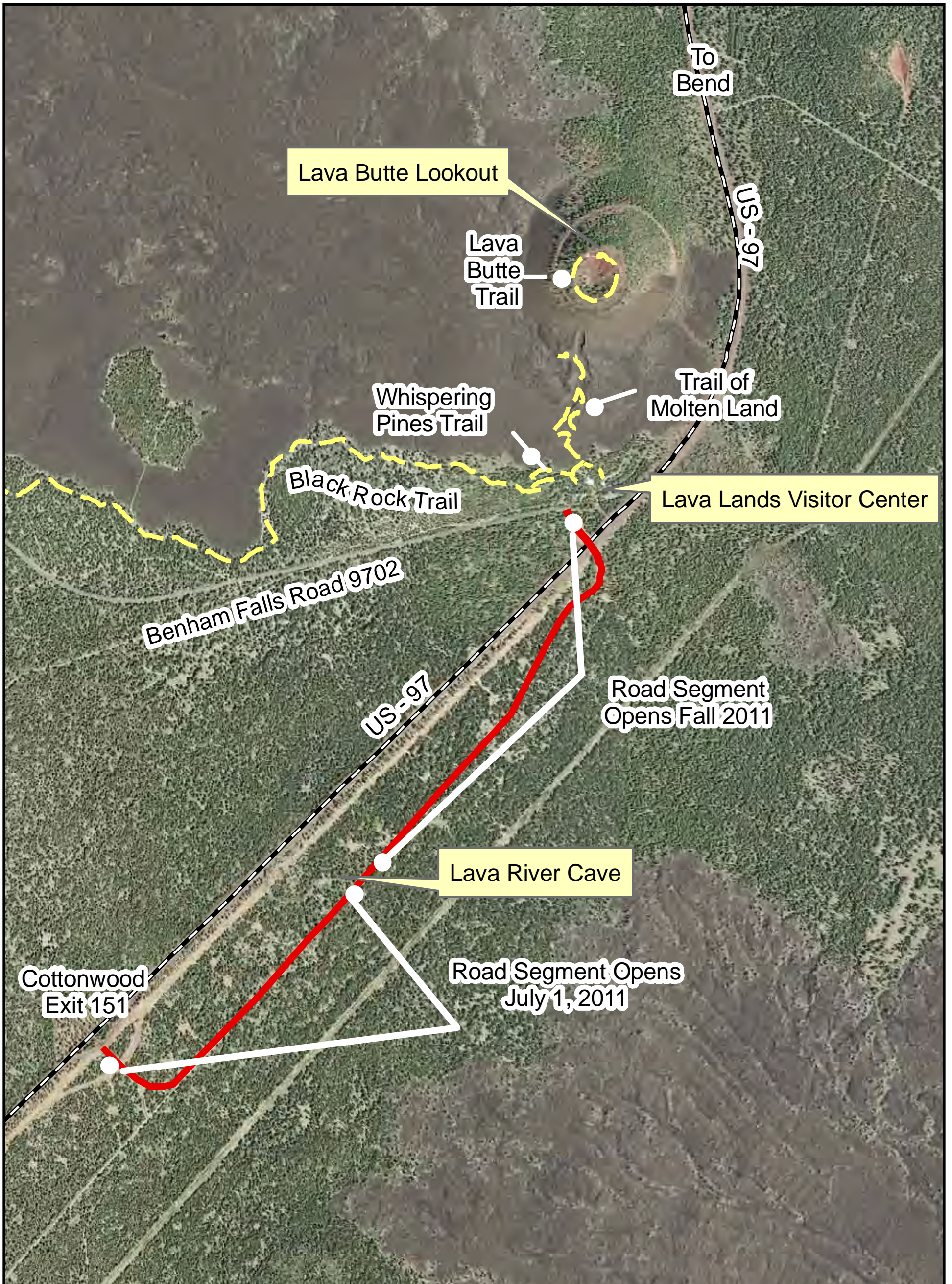
30-minute Interpretive Talks on the Pine Marten Lodge patio. Purchase a lift ticket and ride the Pine Marten chairlift up to the Lodge. Enjoy the view and learn about the volcanoes, geology, ecology, and cultural history of the region.

July 1 - Sept. 5
DAILY at 11:30am and 1:30pm

Mt. Bachelor information:
1-800-829-2442
www.mtbachelor.com



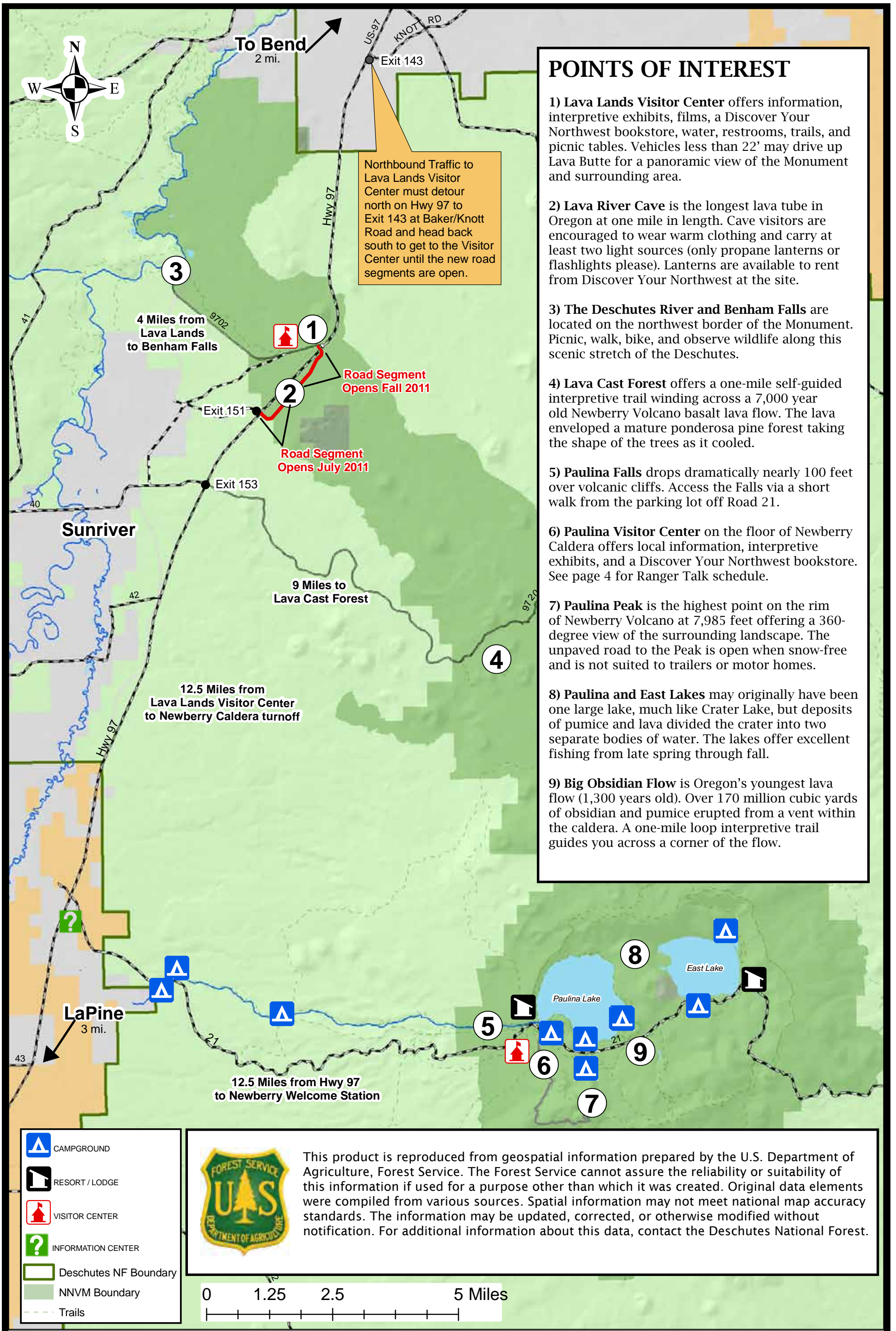
Lava Lands and Lava River Cave



This product is reproduced from geospatial information prepared by the U.S. Department of Agriculture, Forest Service. The Forest Service cannot assure the reliability or suitability of this information if used for a purpose other than which it was created. Original data elements were compiled from various sources. Spatial information may not meet national map accuracy standards. The information may be updated, corrected, or otherwise modified without notification. For additional information about this data, contact the Deschutes National Forest.



Newberry National Volcanic Monument



POINTS OF INTEREST

1) Lava Lands Visitor Center offers information, interpretive exhibits, films, a Discover Your Northwest bookstore, water, restrooms, trails, and picnic tables. Vehicles less than 22' may drive up Lava Butte for a panoramic view of the Monument and surrounding area.

2) Lava River Cave is the longest lava tube in Oregon at one mile in length. Cave visitors are encouraged to wear warm clothing and carry at least two light sources (only propane lanterns or flashlights please). Lanterns are available to rent from Discover Your Northwest at the site.

3) The Deschutes River and Benham Falls are located on the northwest border of the Monument. Picnic, walk, bike, and observe wildlife along this scenic stretch of the Deschutes.

4) Lava Cast Forest offers a one-mile self-guided interpretive trail winding across a 7,000 year old Newberry Volcano basalt lava flow. The lava enveloped a mature ponderosa pine forest taking the shape of the trees as it cooled.








5) Paulina Falls drops dramatically nearly 100 feet over volcanic cliffs. Access the Falls via a short walk from the parking lot off Road 21.

6) Paulina Visitor Center on the floor of Newberry Caldera offers local information, interpretive exhibits, and a Discover Your Northwest bookstore. See page 4 for Ranger Talk schedule.

7) Paulina Peak is the highest point on the rim of Newberry Volcano at 7,985 feet offering a 360-degree view of the surrounding landscape. The unpaved road to the Peak is open when snow-free and is not suited to trailers or motor homes.

8) Paulina and East Lakes may originally have been one large lake, much like Crater Lake, but deposits of pumice and lava divided the crater into two separate bodies of water. The lakes offer excellent fishing from late spring through fall.

9) Big Obsidian Flow is Oregon's youngest lava flow (1,300 years old). Over 170 million cubic yards of obsidian and pumice erupted from a vent within the caldera. A one-mile loop interpretive trail guides you across a corner of the flow.

-  CAMPGROUND
-  RESORT / LODGE
-  VISITOR CENTER
-  INFORMATION CENTER
-  Deschutes NF Boundary
-  NNVM Boundary
-  Trails



This product is reproduced from geospatial information prepared by the U.S. Department of Agriculture, Forest Service. The Forest Service cannot assure the reliability or suitability of this information if used for a purpose other than which it was created. Original data elements were compiled from various sources. Spatial information may not meet national map accuracy standards. The information may be updated, corrected, or otherwise modified without notification. For additional information about this data, contact the Deschutes National Forest.

