

# VOLCANIC VISTAS

## FREE RECREATION GUIDE OF THE DESCHUTES NATIONAL FOREST 1988

### A Landscape To Explore

The natural forces of volcanism, glaciation, and day to day weather have been hard at work for the last 45 million years in central Oregon. These forces have created a unique landscape. Think of it as a giant sculpted playground created for your pleasure!

The Cascade Range, a great north-south chain of volcanoes, has been growing on and off for the past 45 million years. The last two episodes of volcanism occurred from about 13 to 5 million years ago, and from about 2 million years to the present. During the earlier episode several hundred feet of sand, gravel, ash, pumice, and lava accumulated from eruptions and erosion in the nearby mountains. The most recent episode produced the high volcanic peaks crest such as the Three Sisters, Broken Top, and Mount Jefferson. Glaciers then bulldozed their way across this mountain range shaping our present day peaks and valleys.

Glaciers have created many of the present day lakes, rivers, and ponds found throughout the forest. Glacial action slowly builds a pile of loose rock and fine sand at the base of the glacier forming a terminal moraine. This moraine acts as a rock dam and as the glacier continues to melt a lake is formed.

Crescent Lake was formed by a glacial moraine. Other high mountain lakes formed by glaciers include Green Lakes, and Todd Lake.

Some lakes are of volcanic origin, formed when subsurface water filled in craters. Blue Lake is set in a deep 300 foot pit believed to have formed during recent (1500 B.C.) volcanic explosions of great violence. Two other lakes that occupy a volcanic crater are Paulina and East Lakes located in Newberry Crater.

Thousands of years ago, lava came surging up from fissures along the earth's surface. As the surface of the lava cooled it formed a crust of hardened lava sometimes several feet thick. The interior, still molten lava would leak out of the crust leaving lava tubes, or caves. Many caves are open for you to explore, including Lava River Cave, Wind Cave, Arnold Ice Cave, and Skeleton Cave.

Hole-in-the-Ground, located near the town of Fort Rock, was created by a massive explosion, which occurred 13-18,000 years ago. The blast generated pressures as high as 7500 pounds per square inch. There was abundant ground water just below the surface along the shore of an ancient lake. As molten rock ap-



With so many places to explore in central Oregon where do you start? Let us help you get your bearings. Stop at Lava Lands Visitor Center or one of our Forest Services Offices located in Bend, Sisters and Crescent. Our information specialists have an abundance of orientation materials which will make planning your visit a breeze.

Lava Lands Visitor Center, located 11 miles south of Bend on U.S.

proached the surface, along a weak spot in the Earth's crust, it came in contact with the ground water. Steam was formed. You may visit both Hole-in-the-ground and Fort Rock today.

Giant bubbling springs gush forth from a secret passage below the old volcano now known as Black Butte to become the Metolius River. This spectacular work of nature is preserved in its natural primitive setting. Many stretches of the Metolius River are open for flyfishing. There are also fish feeding stations at Wizard Falls Fish Hatchery and Camp Sherman.

### Your Forest

97, offers a large variety of information. There are displays and exhibits which give you an idea of the ongoing geologic processes that are creating this unusual landscape. Using only a little imagination, one can create vivid images of the once molten rivers of rock.

A short drive up Lava Butte allows visitors one of the finest views of the Cascades and surrounding areas.

Interpretive services are also available in Newberry Crater. Campfire talks and nature walks are offered Friday through Sunday. A small Visitor Center with special displays and brochures is also open from June to September for your convenience.

All of these points of interest are open daily during the summer season. Many special activities are scheduled at the Visitor Center. Schedules for these special events are posted at Lava Lands and local Forest Service Offices.

It is your National Forest. All National Forests are public land. Congress has directed that forests be managed in a coordinated way considering all resources and public de-

sires.

Forest personnel are managing the Forest like a business, considering soil, water, air quality, aesthetic values, fish and wildlife, and production of timber and forage (for deer and livestock) in developing and implementing management plans.

You, as owners of the National Forests, have a stake in all of this. We must manage for your concerns and needs along with those of industries dependent on the forests.



## A Historical Drive

Let us take a journey into the Cascades past pristine mountains, streams, and lakes. The route is nearly identical to the present day Cascade Lakes Highway leading out of Bend; the difference is that we have stepped back into an era when there were few cars and even less roads. The date is August 18, 1921 and the route later called Century Drive because of the hundred mile loop it form from Bend, had just opened. During this time, the high country of the Cascades was a place visited by the few hearty trappers, hunters and fishers willing to make an adventure.

We've loaded our 1920, Ford Model T with the standard camping gear of the time, for a three day campout on the shores of Elk Lake. As we head west and south out of Bend, the main two way dirt road soon turns into a single lane double rutted, dirt track that winds like a snake around large ponderosa pines and rock outcrops. Our speed at this point averages ten miles per hour as a plume of lung choking pummie dust raises behind us and the kidneys receive an aerobic workout due to the endless pounding from chuckholes.

For the first hour the traffic is somewhat heavy with other cars and horses. A good day might see up to 35 cars traveling this stretch of road. Today

we've seen seven within an hours time. But, as we venture further into the "backcountry" the frequency lessens.

One of our first stops is at Big Springs to fill our water jugs with the crystal fresh and cool liquid. From here we climb steadily towards Swampy Lakes and beyond to Bachelor Butte. As we ascend, the road gets increasingly windy in an attempt to find the least trees and rocks.

Once we reach Dutchman Flats, we break for lunch in the midst of scenic Cascade splendor and serenity. Views of Bachelor Butte, Broken Top and the Three Sisters are further complimented by a warm blue summer sky. We have reached the highest point in our journey in merely three hours. Compare this with the thirty minutes it takes today!

On the dusty and muddy road once again, we descend the narrow and dangerous grade to Sparks Lake. Pullouts on this section of the early single lane road were far too few. Curves were taken at a snails pace to avoid a serious mishap.

Around 1909, there were plans to develop a summer resort at Sparks Lake, but for some unknown reason this plan faded into the Cascade sunset.

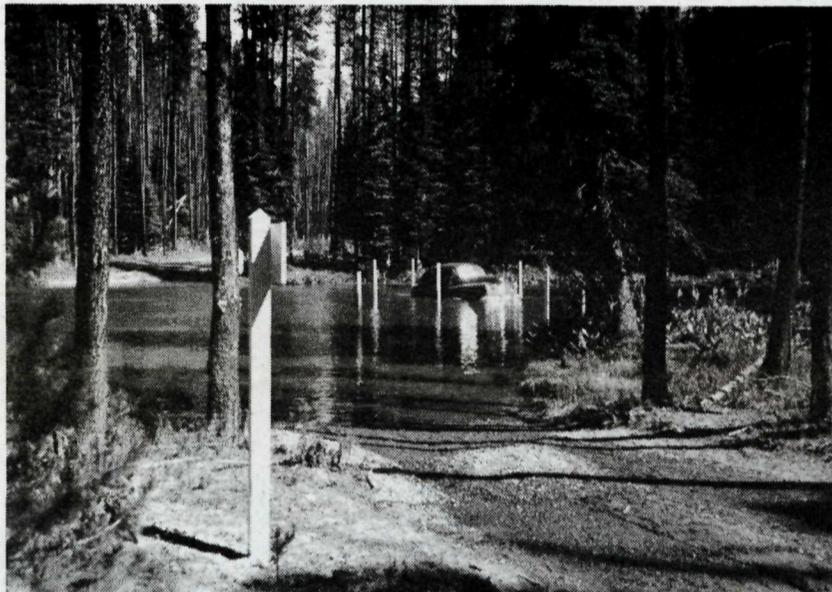
After a check of the Model T's brakes and tires, we cross Sparks Lake meadow with inspiring views of South Sister and Broken Top and head towards the Devils Garden and Devils Lake area. The fording of Soda and Fall Creeks which feed into

Sparks Lake can potentially bog us down, but on this journey we find the waters at a navigable depth for the reliable Model T.

The precarious climb to Devils Lake is well worth the sight of the aqua colored, crystal clear waters. From the lava flow in this area a basalt rock was taken to the moon, to be exchanged for a few moon stones and dust. It's hard to imagine this day (1920's) that man would someday be riding the "celestial road" to the moon.

The last four miles to Elk Lake takes the form of a gradual descending rutted road that is a combination of pummie dust and mud. Here it follows a straight line through lodgepole pine and hemlock forests to the shores of our destination, Elk Lake. A trip of 5 hours covers approximately thirty-five miles through some of the most scenic back country in Central Oregon.

We could venture further down this lesser trodden road to Lava Lakes, the upper Deschutes River, Cultus Lake, Crane Prairie Reservoir, and Devils Lake but, that would involve several more hours of this rough and dusty track. Instead, why not get back to the year 1988 and motor along the modern version of the Cascade Lakes Highway, spending a little time at the numerous recreation sites found along this modern highway. Let the imagination run for awhile and picture yourself and family motoring down that pioneer track of a time not so long ago.



Deschutes National Forest Photo File

Bend District — Cultus River

## Suttle Lake-Blue Lake Areas

Suttle Lake is one of the largest natural lakes in the north end of the Deschutes National Forest, just east of the Santiam summit. The lake was named for John Settle, a pioneer, and was variously known as Settle's Lake, Suttle's Lake, and Suttle Lake. Settle was one of the organizers and directors of the Willamette Valley and Cascade Mountain Military Wagon Road project in 1866. Settle found the lake, which now bears his name in a varied form, while on a hunting trip. Settle also found nearby Blue Lake, of special geologic interest because it apparently formed in a crater following a volcanic blast that spread rock bombs over the area. Suttle Lake was formed when glaciers piled up terminal moraines at its outlet.

In 1965, Dr. Taylor reported of recent volcanism in the Cascades: "Blue Lake, as seen from the Santiam Pass Highway, is 0.5 of a mile long and 0.2 of a mile wide and set in a deep pit formed by recent vol-

canic explosions of great violence. The Blue Lake eruptions resulted in at least three overlapping craters." During the field study, charred wood from the limb of a conifer was excavated. The wood provided a carbon 14 dating, indicating the eruption of Blue Lake occurred about 1500 B.C.

Today, these two lakes offer many recreational opportunities. Blue Lake — for the most part private land — is operated by Blue Lake Resort. The resort offers a variety of affordable lodging, dining, camping, boat rentals, and horse trail rides.

Suttle Lake, 1/2 mile to the east, is managed by the U.S. Forest Service and offers three campgrounds, two day-use areas, and one resort with camping, boat rentals, and a store. Recreational opportunities include hiking, fishing, boating, waterskiing, swimming, and sailing.

For more information, call the Sisters Ranger District at (503) 549-2111.

## While in the Crescent Area

Fishing	Land a big one at Odell, Davis (fly fishing) and Crescent Lakes or at Crescent Creek Campground
Paddle your own canoe	Summit Lake, Big Marsh and Wickiup Reservoir
Straddle your own horse	Diamond Peak Wilderness and Oregon Cascades Recreation Area (Whitefish Horse Camp)
Water skiing and boating	Make waves at Crescent Lake (Tranquil Cove, Spring Campground, Contorta Point, Simax Beach and Bay and Crescent Lake Campgrounds)
Camping	
Developed sites	Crescent, Odell and Davis Lakes
Roughin' it	Backpack in to Diamond Peak Wilderness, Mt. Thielsen Wilderness, Maiden Peak Roadless Area and Oregon Cascades Recreation Area
Scuba diving	Odell and Crescent Lakes
Sailboarding & sailboating	Catch the wind at Crescent and Odell Lakes
Sunbathing	Catch the rays at Simax Beach and Bay, Tranquil Cove, Spring Campground, Crescent Lake Campground and Contorta Point
Birdwatching	Davis Lake (bald eagles, ospreys, sandhill cranes and lots of waterfowl), Odell Lake (bald eagles), Big Marsh (sandhill cranes, waterfowl and red-winged blackbirds, among others)
Pick a picnic spot	Crescent Lake (Simax Beach and Bay, Tranquil Cove, Tandy Bay, Spring Campground, Crescent Lake Campground), Odell Lake (Sunset Cove, Princess Creek)
Take a hike	Trailheads at Crescent, Odell and Summit Lakes, Windigo and Willamette Pass and near Davis Lake. Lots of lakes within easy walking distance (Bobby, Maiden, Rosary, Midnight, Yoran, Fawn, Windy, Bingham, just to name a few)
Take a dip	Good swimming beaches all around Crescent Lake
Be a shutterbug	Opportunities for photography abound (snow-capped peaks, pristine lakes, plentiful wildlife)
Stay cool on a hot day	Camp at Odell Creek Campground on the east end of Odell Lake
Hunting	Several species of game animals (check State hunting regulations for seasons)
Mountain biking	Pedal to your heart's content in the Oregon Cascades Recreation Area
ATV riding	All-Terrain Vehicle trails now being planned



## Explore A Volcano

Newberry Crater, a 43 mile drive south of Bend, is a wonderful place for hiking, fishing, camping, and discovering some of the unique geology of Central Oregon.

### Interesting Recreation Opportunities

There are 2 full service resorts in the Crater and five developed campgrounds. Chief Paulina Horse Camp offers facilities for those who bring their horses to ride Crater trails.

Over 100 miles of trail wind through and around Newberry Crater. The trails offer a variety of scenery and distances — including a ¼ mile trail to view beautiful Paulina Falls, the 3½ mile trail to Paulina Peak, and the 7 mile loop around Paulina Lake.

Naturalist-led hikes are conducted on weekends beginning in mid-June. The hikes vary in time and distance. A Saturday campfire program also begins in Mid-June. Come and join us.

For more information on Newberry Crater, visit Lava Lands Visitor Center, ask at the Entrance Station to Newberry Crater, or in the Paulina Guard Station Information Center just beyond the entrance station.

### Unique Geology

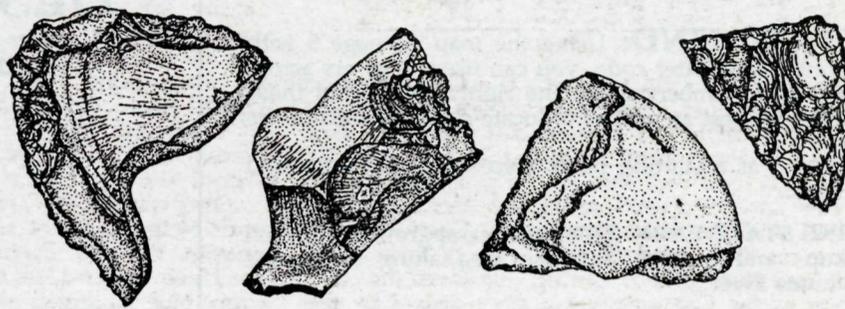
One of the largest volcanos in the United States, and the largest in Oregon, Mt. Newberry covers 500 square miles and rises to 7985 feet at Paulina Peak (a spectacular vista point reached by car via dirt roads). Like Crater Lake to the south, the top of Mt. Newberry collapsed after repeated violent eruptions during the past half million years.

Mt. Newberry is too large and broad to be easily recognized as a single landform. Instead, it is notable for the many cinder cones (over 400) that dot its flanks. Half of its great bulk is made up of lava flows

and cinder cones; the other half ashflow and airfall deposits. The last two are products of violent eruptions.

About 6000 years ago a dozen or so lava flows and cinder cones erupted from fissures on the flanks of Mt. Newberry. An excellent example is Lava Butte, 10 miles south of Bend on Highway 97. The most recent events in the crater, were the eruptions of pumice (a volcanic foam that floats) and a stiff black glass-like obsidian flow that occurred 1300 years ago.

## Man's Ancient History



Human presence in Central Oregon goes back to the last ice age. The climate was more moist and cooler 10,000 years ago. About 7000 years ago a warming and drying trend started and persisted for 2500 years. The weather patterns of today have been established for the last 4500 years. As animals and plants adapted to the dramatic changes in this climate, human habits changed.

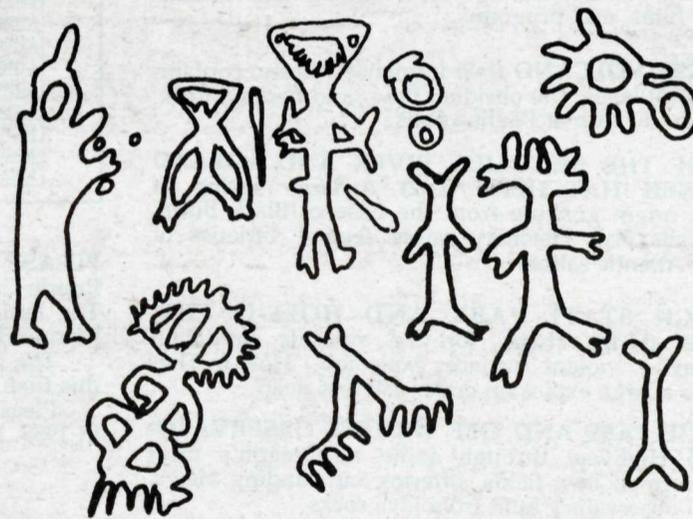
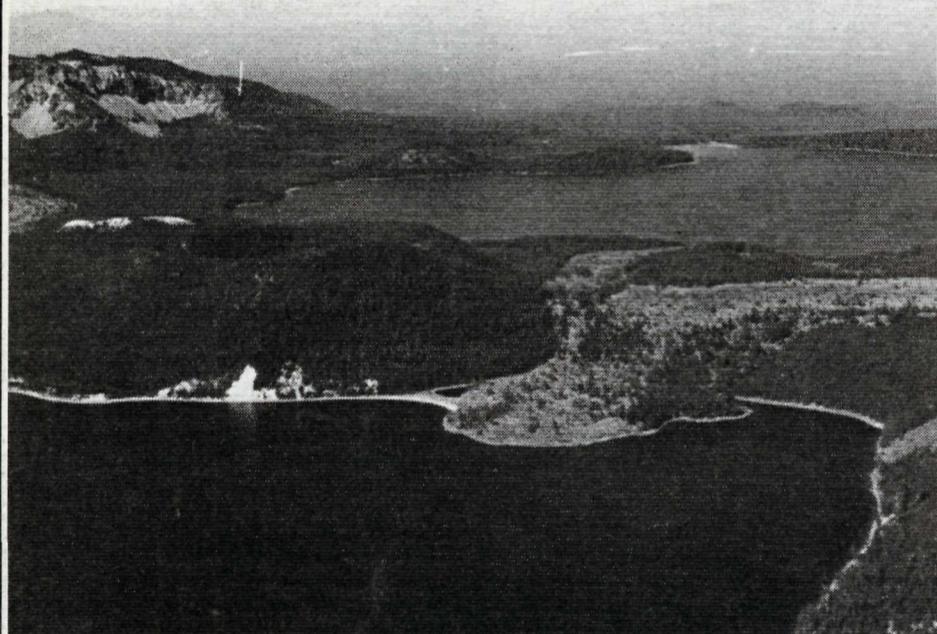
Early people were primarily hunter/gatherers and fishermen/gatherers. They were nomadic, with no permanent settlements and no domestic animals or crops. There is evidence, from findings at various archaeological sites, that the Central Oregon people were influenced by the customs and cultures from the Great Basin to the south and the Columbia Plateau to the north.

In the 1930's sandals made from sage bark were discovered at Fort Rock cave, on the southeast edge of the forest. Scientific methods at the time estimated the items in the cave to be around 14,000 years old, and were confirmed by radio-carbon dating in the 1950's. Large spear points and seed grinding tools show that these early people hunted some very large game animals and used

native plants for food. Bone and stone implements have been found that relate to fishing and gathering.

The use of smaller points around 9,000 years ago marked a technical advance along with the spear throwing device known as the "Atlatl". The atlatl gave greater control of the spear, including force and distance advantages. Around 2000 years ago the bow and arrow became the major hunting tool and replaced the atlatl. Gradual changes in lifestyles, artifacts and tools continued until the introduction of the horse. Increased mobility and contact with groups outside the area are indicated by similarities in cultural traits with the Plains and Northwest Coast people. In the recent past, the area was traditionally used by people related to the Molala, Tenino, and Northern Paiute Indians.

Obsidian sources in the Cascades and Newberry volcano provided a favorite material for stone toolmaking. Each source has a particular "chemical fingerprint" and helps scientists trace the artifacts made from the area. Raw materials and artifacts of local obsidians have been found in California, Idaho, and British Columbia.



### Help Protect Traces of the Past

Like a great book, the Deschutes National Forest holds the records of more than 10,000 years of human use. These records of the past may be recognized as a few "meaningless" stone artifacts, tools, arrowheads or the remains of historic logging. Ancient ruins, artifacts and historical remnants are fragile, irreplaceable and the relationship to their surroundings is damaged by their removal.

Help prevent the destruction of

the national heritage which belongs to all citizens. Artifacts should not be removed for personal souvenirs and are protected by the Antiquities Act of 1906, the Archaeological Resource Protection Act of 1979, and other federal laws. Discovery of historic and archaeological objects, sites of interest, or vandalism to these properties should be reported to the Forest Service at 503-388-2715. Thank you for helping save America's heritage

### Did You Know...

An ancient Indian trail went by Devils, Sparks and Green Lakes, to the head of Pole Creek, and then to Sisters where it joined other trails from Tumalo Creek, Scott Trail, and a trail from The Dalles. The system extended from The Dalles to the Klamath Marsh area and evidently was a summer route along which hunting, fishing, and berry-picking occurred.



# OUT & ABOUT

**HOW TO FIND:** Using the map on page 5 with its number and letter code, you can use the letters across the top and numbers down the right side to find these points of interest as well as to locate campgrounds in the directory.

With Bend as a starting point, here are some suggested day trips:

**LaPINE STATE PARK (D-7)** State campground with full hookups and a large day use area along the scenic Deschutes River.

**TUMALO STATE PARK (E-4)** State campground with a day use area in the canyons of the Deschutes between Bend and Sisters, near the town of Tumalo.

**SUTTLE LAKE-BLUE LAKE AREA (C-2)** Large natural lakes at the foot of the Cascades; beach access and campgrounds just west of Sisters on Hwy. 20.

**PINE MOUNTAIN OBSERVATORY (G-7)** Better as a "night" trip — the public is welcome to visit this astronomical facility staffed by the University of Oregon.

**LAVA LANDS VISITOR CENTER AND LAVA BUTTE (E-6)** Visitor center with interpretive trails. Lava Butte provides spectacular view, a trail, and a Forest Service fire lookout.

**LAVA RIVER CAVE (E-6)** The longest uncollapsed lava tube in Oregon. Easy accessibility, maintained trail, picnic area.

**BENHAM FALLS, (E-6)** Created by a lava flow diverting the river. Easy ¾ mile walk to falls, picnic area.

**LAVA CAST FOREST (F-7)** Lava flowing around trees cooled slowly, forming casts of each tree.

**TUMALO FALLS (D-5)** Cascading waterfall. A sharp contrast with surrounding area burned by Bridge Creek Fire in 1979.

**SMITH ROCK STATE PARK (G-3)** Pinnacles and spires are the eroded remnants of ancient volcano. Great rock climbing.

**HIGH DESERT MUSEUM (F-5)** Museum of regional cultural and natural history. Live animals and demonstrations, films, and programs.

**NEWBERRY VOLCANO (F-8)** Immense volcano contains two beautiful lakes, the obsidian flow, and Paulina Peak. Don't forget to stop at Paulina Falls.

**HEAD OF THE METOLIUS RIVER AND WIZARD FALLS FISH HATCHERY (D-2)** A large spring of unknown origin gushing from the base of Black Butte. Wizard Falls Fish Hatchery raises several varieties of trout and Atlantic salmon.

**FT. ROCK STATE PARK AND HOLE-IN-THE-GROUND (H-10)** Huge, fort-like volcanic formation created by a violent surface explosion. Hole-In-The-Ground is a large explosion crater 450 feet deep.

**McKENZIE PASS AND DEE WRIGHT OBSERVATORY (C-3)** Highway through some of Oregon's most recently formed lava fields, offering outstanding views. Memorial observatory built from lava rocks.

**MT. BACHELOR SUMMIT LIFT. (D-5)** Ski resort maintains summit lift throughout the summer season.

**CRESCENT AND ODELL LAKES (B-8)** Scenic lakes for camping, fishing, boating, swimming and more.

**CASCADE LAKES HIGHWAY (C,D,E-5&6)** One hundred mile loop drive from desert to base of the Cascades, offering spectacular views of lakes, streams, and mountains. A real "must" on your visit to Central Oregon.

**LAKE BILLY CHINOOK (E&F-1)** Impressive canyons containing the Deschutes, Metolius and Crooked Rivers offering extensive water recreation opportunities.

# DESCHUTES NATIONAL FOREST CAMPGROUND DIRECTORY

CAMPGROUND	Map Location	Camp Sites	Use Fee	Drinking Water
Abbot Creek	C2	4	—	—
Allen Springs	D2	17	yes	yes
Allingham	D2	10	yes	yes
Besson Camp	D6	5	—	—
Big River	E6	17	—	—
Black Pine Springs	D4	5	—	—
Blue Bay	C2	25	yes	yes
Bull Bend	D7	4	—	—
Cabin Lake	G9	14	—	yes
Camp Sherman	D2	15	yes	yes
Candle Creek	D1	5	—	—
Chief Pauline (Horse)	F7	14	yes	—
China Hat	G7	14	—	yes
Cinder Hill	F7	109	yes	yes
Cold Spring	D3	23	yes	yes
Contorta Point	B9	9	—	—
Cow Meadow	C7	19	—	—
Crane Prairie	C7	32	yes	yes
Crescent Creek	C9	10	—	—
Crescent Lake	B9	46	yes	yes
Cultus Lake	C6	54	yes	yes
Deschutes Bridge	C6	15	yes	yes
Devils Lake	C5	*6	—	—
Dillon Falls	E5	7	—	—
Driftwood	D4	16	—	—
East Lake Davis	C8	33	yes	yes
East Lake	F7	31	yes	yes
Elk Lake	C5	22	yes	yes
Fall River	D7	9	—	—
Gorge	D2	18	yes	yes
Gull Point	C7	80	yes	yes
Hot Springs	F7	43	yes	yes
Indian Ford	D2	25	yes	yes
Jack Creek	C2	11	—	—
Lava Camp Lake	C3	12	—	—
Lava Flow	C8	12	—	—
Lava Island Camp	E5	1	—	—
Lava Lake	C6	45	yes	yes
Link Creek	C2	33	yes	yes
Little Crater	F7	51	yes	yes
Little Cultus Lake	C6	10	—	yes
Little Deschutes	C9	6	—	yes
Little Fawn	C5	33	yes	—
Little Lava Lake	C5	14	—	yes
Lower Bridge	D1	12	yes	yes
Lower Canyon	D1	5	—	—
McKay Crossing	E7	10	—	—
Mallard Marsh	C5	15	—	—
Mile	C6	8	—	—

CAMPGROUND	Map Location	Camp Sites	Use Fee	Drinking Water
Monty	E1	45	—	—
North Cove	F7	6	—	—
North Davis Creek	C8	17	yes	yes
North Twin	C7	10	—	—
Odell Creek	B8	22	—	—
Paulina Lake	F7	71	yes	yes
Pebble Bay	B8	*2	—	—
Perry South	E1	63	yes	yes
Pine Rest	D2	*8	yes	yes
Pioneer Ford	D1	20	yes	yes
Point	C5	9	yes	yes
Prairie	E7	14	yes	yes
Ogden Group Camp	E7	14	yes	yes
Princess Creek	B8	46	—	—
Pringle Falls	D7	7	—	—
Quinn Meadow (Horse)	C5	22	yes	yes
Quinn River	C7	41	yes	yes
Reservoir	C8	28	—	—
Riverside	D2	19	—	—
Rock Creek	C7	32	yes	yes
Rosland	E7	11	—	—
Round Lake	C2	*5	—	—
Scout Lake	C2	13	yes	yes
Sheep Bridge	C7	12	—	—
Sheep Spring (Horse)	C2	11	yes	yes
Slough Camp	E6	5	—	—
Smiling River	D2	37	yes	yes
Soda Creek	C5	12	—	—
South	C5	23	—	—
South Shore	C2	39	yes	yes
South Twin	C7	21	yes	yes
Spring	B8	68	yes	yes
Summit Lake	A9	3	—	—
Sunset Cove	B8	27	yes	yes
Swamp Wells (Horse)	F6	5	—	—
Three Creeks Lake	D4	10	—	—
Three Creeks Meadow	D4	19	—	—
Todd Lake	C5	*4	yes	—
Trapper Creek	B9	32	yes	yes
Wampus	D7	2	—	—
Warm Springs	F7	*5	—	—
West Cultus Lake	B6	*15	—	—
West Davis Lake	C8	25	yes	yes
West South Twin	C7	24	yes	yes
Whispering Pines	C4	6	—	—
Whitefish (Horse)	B9	19	—	—
Wicklup Butte	C8	5	—	—
Wyeth	D7	1	—	—

\*Tent Only

**PLEASE NOTE:** The Deschutes National forest received funding to improve and expand Crane Prairie Campground into 147 units with boating facilities, fish cleaning stations — the whole works!! The funding is coming through the cooperative efforts of Deschutes County, the Oregon State Marine Board and the Deschutes National Forest.

The campground will be closed for 1988, so that the construction can be finished. Throughout this time Crane Prairie Resort WILL REMAIN OPEN.

Please be patient! We realize this may be a favorite spot for you. The new facilities should open in 1989. If you have questions please contact Walt Schloer, Bend District Ranger at 388-5651.

## MORE FOR YOUR CAMPING \$\$

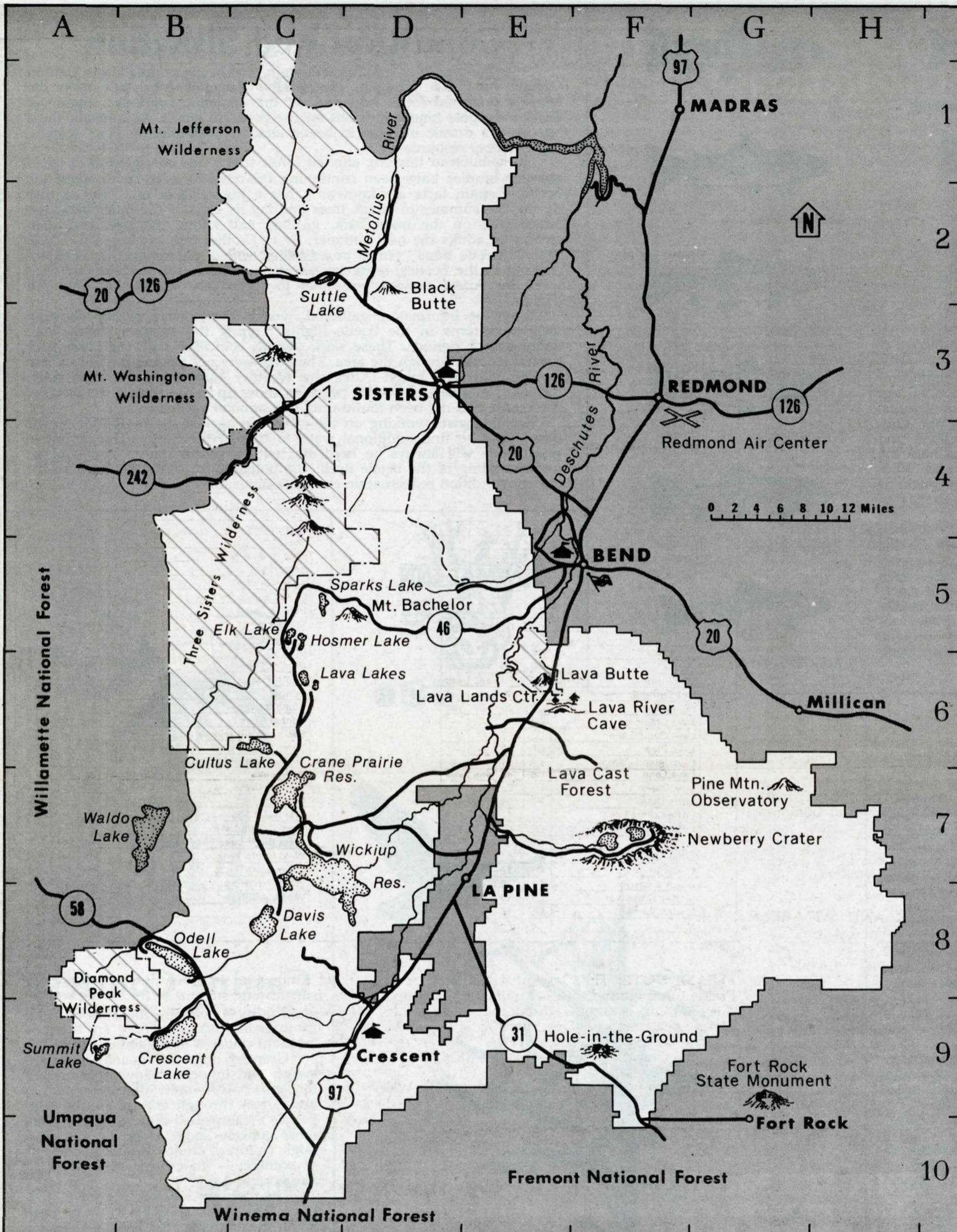
### FOR OUR GOLDEN VISITORS...

Golden Age Passports (for U.S. residents over 62) are available free of charge at National Forest Service Offices and provide a 50% discount on camping fees. Use CampStamps for more savings.

### FOR ALL VISITORS...

Available to all forest visitors are CampStamps which must be purchased in advance at Forest Service Business Offices and Ranger Stations — a 15% savings...





## DESCHUTES NATIONAL FOREST

U. S. DEPARTMENT OF AGRICULTURE - FOREST SERVICE

-  Supervisor's Office
-  District Headquarters
-  National Forest Boundary
-  Paved Road

-  U. S. Highway
-  State Highway
-  Main Forest Access Road

## TRAVELING ON FOREST ROADS

Most National Forest roads are low standard, one lane roads. Many are not graveled. Remember:

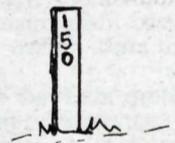
- Gas and lodging are seldom available along National Forest roads.
- Encounters with logging trucks are likely, even on weekends.
- Driving rules used on State Highway apply to National Forest roads.
- Forest maps with information on roads, trails and campgrounds are available at Forest Service offices and the Lava Lands Visitor Center.
- Route markers identify two types of roads maintained for automobile travel.



Primary route marker. Usually the better choice for the traveler.



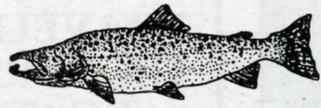
Secondary route marker. May not be as smooth or maintained as well.



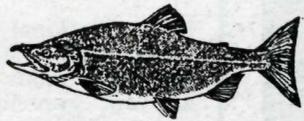
Routes not suitable for automobile travel. These roads can also be identified by the following:

- vertical route markers placed away from road entrance.
- obstructions in roadway such as waterbars, scattered rocks, limbs or ruts.
- drainage ditch across the road entrance.
- painted road edge line across road entrance.

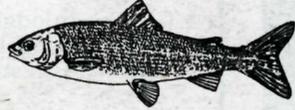




Atlantic Salmon



Kokanee



Whitefish

## FISHING

Forest lakes offer plenty of opportunities to catch the big (and not so big) ones. 158 lakes and 247 miles of streams, are managed cooperatively by the Oregon Department of Fish and Wildlife and the Deschutes National Forest. Check the Oregon Department of Fish and Wildlife's regulations for approved methods of angling for these many varieties of fish.

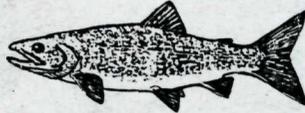
Also check the regulations on when fishing season opens and closes for the particular area in which you are interested. Most rivers, streams, and lakes open on the third or fourth Saturday of April, while East Lake and Paulina Lake usually open on the Saturday preceding Memorial Day. Most of the waters on the Deschutes National Forest close on October 31.



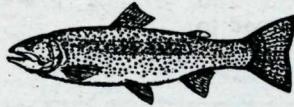
Brook Trout



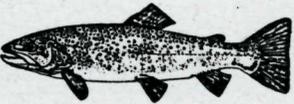
Rainbow Trout



Lake Trout



Cutthroat



Brown Trout



Dolly Varden

## Condition Red Situation

Over the past 20 years, the mountain pine beetle population in Central Oregon has been growing. Historically, lodgepole pine has been the beetle's preferred food; however, as the epidemic continues, there are fewer lodgepole pine stands left for the beetle to attack. As a result, there has been a drastic increase in beetle attacks on ponderosa pine, a high-value lumber resource.

In addition to thinning affected forest stands and salvaging dead trees, research studies have been continuing this year to learn more about the beetle. Certain facts are known: it has a life cycle of one year; it flies during the summer to attack trees and lay its eggs in the inner bark; the larvae feed on the inner bark, girdling and killing the tree; and then emerge as adults the next summer, fly to another tree and begin the cycle again. "Beetle traps" (small boxes baited with a pheromone, a substance enticing to the beetles) were set throughout the forest and emptied each week by Forest Service personnel to record the number of captured beetles.

From the information gathered, weekly charts were plotted showing distinct patterns in the beetle flights. During the summer, there were definite slack periods. These slack periods coincided with the passage of several storms through the area. The bugs were not leaving the trees when it was cold and rainy! After the weather turned warmer and drier, increased numbers of beetles began to show up in the traps. This weather preference had not been found until last summer's research.

Entomologists working on the campaign against the beetle use all the information to find additional ways to combat the beetle. The mountain pine beetle will always be here, but with a healthy forest and a better understanding of the beetle itself, the potential for outbreaks such as the current condition red situation can be minimized.



## Canine Courtesy

The most common nuisance in campgrounds are loose dogs. They are the most frequent cause of complaints.

Granted dogs are usually obedient, sweet, and innocent. However, dogs often are noisy when their owners are away, run through the middle of other people's campsites, deposit feces in the most unlikely spots, chase or bite other dogs, children, adults, squirrels, and other wildlife. — In other words, they act like normal dogs.

This is why we ask dog owners to keep their pets on a leash at all times when in campgrounds, and that you not leave your dog unattended. On trails, dogs often do not get along with other trail users such as people, horses, llamas, bicycles, and snowmobiles. We ask that you keep your dog close to you at all times.

We ask that you please respect the general public's right to enjoy their forest visit by keeping your friend close at hand and in control.

## The Bear Facts

The National Forest is home to many animals, including black bears. They often appear in campgrounds on the east side of the forest during late summer. In order to get as much food as possible before winter the bears may visit campsites with food left out in the open. Black bear attacks and human injury are extremely rare, however coolers and unattended food have been taken, including stuff from tents.

Remember that these bears are wild animals. Please use extreme caution near bears and follow these simple safety rules:

- Store all food containers in a vehicle — preferably out of sight or in the trunk.
- Clean up all food, food containers, cooking utensils and table scraps after each meal. Never leave food unattended, even for a few minutes.
- Deposit all garbage in the nearest cans.
- Clean fish and discard the entrails in the garbage, not in the lakes or streams, or in the wastewater disposals.
- Never intentionally feed the bears.

Following these practices will reduce the likelihood of bear encounters. Bears can become used to camper food and sometimes must be removed from the area. They are lured into live traps and transported to remote areas. These actions are extremely stressful on the bear.

Please, don't help a good bear go bad, lock away your food.



## Solitude Is Where You Find It

Tired of being in crowded campgrounds where you are so close to the next camper that you know what they are having for dinner, and have involuntarily heard their latest domestic squabble?

Have you ever hiked a painful 8 miles in dusty heat, with sore feet, and sweaty back only to reach the alpine lake and discover 10 others got there before you and are occupying all of the prime swimming spots?

Well, here are some suggestions for uncrowded campgrounds and trail destinations where, you can get away from most of the masses.

**CAMPGROUNDS** — The Deschutes National Forest recreation map can help you find sites, along the Deschutes River below Wickiup dam. All are small, without water, garbage service, or frequent toilet cleaning; but, they do have easy access to water activities, and are quiet, charming, and free.

Further west, along Century Drive, are numerous smaller campgrounds with a variety of "reduced services" and things to see and do.

**TRAILS** — The Three Sisters Wilderness map and the Deschutes National Forest map can help you find these trails.

The Broken Top, Green Lakes, Mirror Lakes, and Three Sister Peaks areas are very crowded. However, the southern portion of the wilderness is generally less crowded, as is the area near Irish, Taylor and Charlton Lakes. These places can be reached by trailheads on the west side of Century Drive, near Elk Lake, Lava Lake, Cultus Lake, Irish and Taylor Campground, and Charlton Lake. Bring lots of mosquito repellent and water and get ready to explore! The road to Irish and Taylor lakes is not recommended for trailer or passenger vehicles.



## Bikes On The Backroads

Mountain bikes are fast becoming a familiar sight in Central Oregon. Their low gears and improved stability make hill climbing easier, with special tires, and sturdy frames, they can open up a whole new world of challenges for the avid outdoor lover.

The mountain bike insures a speedier trip than hiking and the terrain in the Deschutes National Forest offers a variety of scenic opportunities for all levels of interest and ability.

Few trails are closed to mountain bikes, *all wilderness areas* are off limits though and riders should observe a few common sense rules of courtesy. The National Off Road Bicycle Association has established some of these in a general code:

- Yield the right of way to other recreationists.
- Use caution when approaching or overtaking another and make presence well known in advance.
- Maintain control of speed at all times and approach turns in anticipation of someone around the bend.
- Stay on the designated trails to minimize your impact on the land.
- Do not disturb wildlife or livestock.
- Take out what you pack in, and then some, whenever possible.
- Respect property signs and leave gates as found.
- Leave word of your destination and planned return.

## Special Services Available

Learning the things to see and do in a new area can be difficult, especially if one has limited time. Services provided by private individuals can greatly enhance the quality of your visit to Deschutes National Forest. These services include outfitter and guide groups, resorts, lodges, camps, and special recreation events.

While the outfitter and guide services occur on forest land, the companies are located in the towns of Sisters, Bend, LaPine and Crescent. You can take a whitewater raft trip down the Deschutes River, or get windsurfing lessons on Elk Lake. If you prefer a more contemplative time, try flyfishing lessons on Davis Lake or Fall River, or have a fishing guide show you the secrets to catching Kokanee at Crane Prairie and Wickiup Reservoirs or Paulina Lake.

Back roads and trails unfold on a mountain bike tour led by an experienced guide. If you'd prefer more risk try mountain climbing lessons. For those who prefer a "top notch" experience the scenic ride a horse or let Mt. Bachelor's chair lift carry you to the mountain top in summer. The

romantic at heart participate in a guided moonlight ski complete with gourmet outdoor dinner!

Resorts and lodges located throughout the forest on spectacular lakes and rivers offer lodging, dining, boat and canoe rentals, along with many tours. The resort owners go out of their way to make your trip as enjoyable and memorable as possible.

Many annual competitive events are held on the Deschutes National Forest to take advantage of the physical challenges offered by this unique landscape. These include the Pole, Pedal, Paddle which is held every spring — this five event race stretches from the top of Mt. Bachelor to the Deschutes River in Bend. Other athletic events include the Cascade Lakes Triathlon, the Crater Classic (held in Newberry Crater), the Cycling Classic, and the Great Resort Run.

Other special events include a hang gliding race from Pine Mountain, dog sled races, mountain bike races, horse endurance rides, and a Boy Scout Jamboree.



## Your Support Is Appreciated

Volcanic Vista is published for forest visitors by the U.S. Department of Agriculture, Forest Service, in cooperation with the Pacific Northwest National Parks and Forests Association. The Association is a nonprofit organization created to benefit National Parks and Forests of the Northwest by providing programs of interpretation, education and research.

To help visitors better understand, appreciate and protect the Forest, the association sales outlet at LAVA LANDS VISITOR CENTER offers selected publications, maps and souvenirs.

Tax deductible memberships (Students \$3.00; Regular \$5.00-\$10.00) to the association are available at all PNNPFA outlets, entitling members to a fifteen percent discount on all merchandise. To join or make a contribution simply fill out the form below and mail to:

Lava Lands Visitor Center  
58201 S. Hwy 97  
Bend, OR 97707

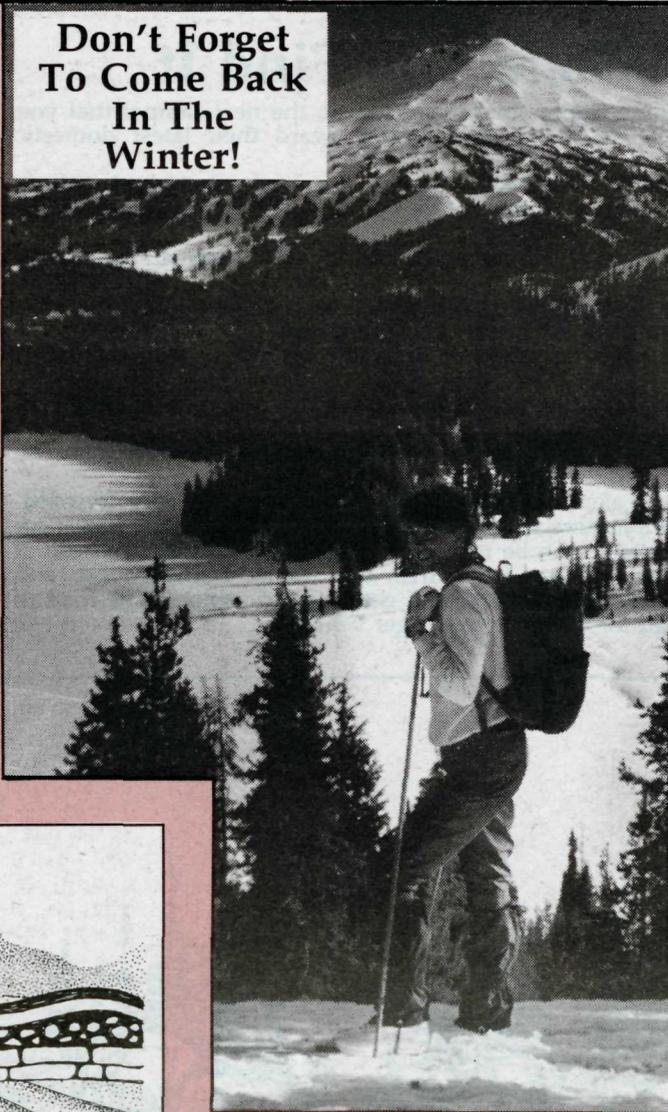


Name \_\_\_\_\_

Address \_\_\_\_\_

City / State \_\_\_\_\_ Zip Code \_\_\_\_\_

**Don't Forget  
To Come Back  
In The  
Winter!**



## Keep In Touch

As public servants we want to help you in any way we can. Following is a list of Forest Service offices and emergency numbers.

All Forest Service Offices are open 7:45 to 4:30 Monday thru Friday. Sisters Ranger District Office is also open on Saturdays during the summer. Lava Lands Visitor Center is open 10:00-5:00 daily from mid-May to mid-October.

### FOREST SERVICE OFFICES

Deschutes National Forest  
Supervisors Office  
1645 Highway 20 East  
Bend, OR 97701  
(503) 388-2715

Bend & Fort Rock Ranger Districts  
1230 NE 3rd Street  
Bend, OR 97701  
(503) 388-5664

Sisters Ranger District  
Sisters, OR 97759  
(503) 549-2111

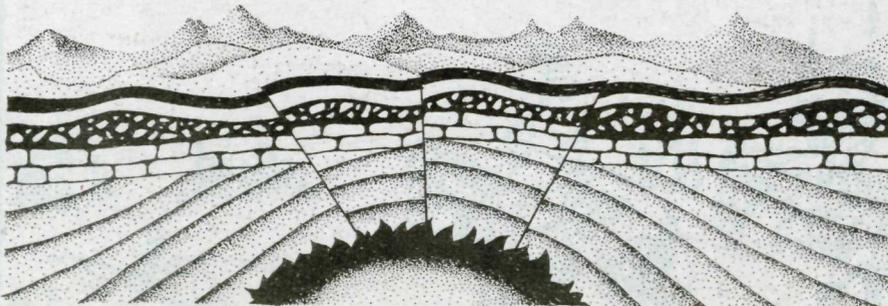
Crescent Ranger District  
Crescent, OR 97759  
(503) 433-2234

Lava Lands Visitor Center  
58201 S. Hwy 97  
Bend, OR 97707  
(503) 593-2421

### EMERGENCY NUMBERS:

Deschutes County ..... dial 911  
Gilchrist area ..... 433-2279  
Crescent area ..... 433-2400  
To report a Forest Fire, dial Operator and ask for Commerce 9903

## Steam For Energy



The Deschutes National Forest is considered to be one of the foremost areas for the development of electrical energy derived from geothermal resources. Newberry Volcano, a huge volcano covering an area over 500 square miles, is the focus of geothermal exploration. Geothermal energy, heat from within the earth, is tapped nationally and internationally to heat homes, businesses, and schools through direct use; to heat greenhouses; and to generate electricity.

Exploration began in the 1970's on the Forest and has taken the form of soil, magnetic, electrical resistivity, and mapping studies. Over thirty core holes have been drilled to various depths to determine stratigraphy (rock types with depth), and measure temperatures at various depths. The hottest known temperature to date is around 500° Fahrenheit

recorded from a 3,000 foot research hole drilled by the U.S. Geological Survey.

Results of exploration are encouraging, so much so that a company called GEO Operator Corporation is proposing to drill a deep exploration well (10,000 feet) during 1988 on the flanks of Newberry Volcano. Results from this well may lead to further proposals for the production of electricity.

The Forest Service works closely with the Bureau of Land Management (BLM) in regard to mineral activity on the National Forest. Detailed analysis including public involvement is conducted prior to permitting geothermal drilling activities. Geothermal energy exploration continues to be just one of the many multiple uses managed in your National Forest.



## Collecting in the Wild...

Wildflowers or native plants... Firewood... Lava Rock...

Information and permits are available at Forest Service Ranger District offices. Call or visit for specifics.

## Volunteer For



### A Summer of Fun

If you are interested in helping on the National Forest, fill out and mail the form below. We will send you more information regarding your areas of interest.

I WOULD LIKE MORE INFORMATION ABOUT VOLUNTEERING ON THE DESCHUTES NATIONAL FOREST. THE AREAS I AM MOST INTERESTED IN ARE: (check all that apply)

- Campground Host                       Wilderness Guard  
 Lava Lands Visitor Center               Interpretive Worker  
 Other (please specify: ie. maintenance, etc.)    Fish and Wildlife Projects

Your name and address \_\_\_\_\_

MAIL TO: Deschutes National Forest    Attn: Volunteer Coordinator  
1645 Highway 20 East  
Bend, OR 97701

(503) 388-2715