



Peak Experiences

The official newspaper
of Lassen Volcanic National Park

November 2005 - April 2006



Chaos Crags (Photo by S. Ochs)

Surviving Winter

Wild animals have three main methods of dealing with winter: They can leave it by migrating; they can avoid it by hibernating or they can live with it by confronting and adjusting to its severe conditions.

Many animals migrate. More than 83 species of birds nest in the Park. Most of these birds leave northeastern California before winter sets in and return in spring. Western tanagers fly as far south as Costa Rica. Many songbirds, from swallows to warblers fly to western Mexico for the winter. How many people do you know who head south to places like Florida when the winter weather arrives?



Lassen's western tanagers can migrate over 3,000 miles between summer and winter homes.

Spending winters in the tropics conjures up images of sun-bathing on a balmy beach. For birds, however, winter is no vacation. Birds of all sizes fuel their long distance flights by burning fat, so they must store body fat prior to migration and eat enough to replenish this fat as it is burned. Travel to and from nesting areas is full of perils, including storms, predators, obstacles such as radio towers, and the search for food in unfamiliar landscapes.

Many flying animals choose not to migrate during Lassen's harsh winters. Some insects, such as Lassen's California Tortoise Shell butterflies, survive the winter by producing glycerol, a form of sugar that resists freezing. On cold nights, birds such as Lassen's chickadees enter a controlled hypothermia; lowering their body temperatures allows them to save fat that would have been burned to maintain their normal high body temperature.

Hibernation is a strategy used by animals including bears, bats, golden-mantled ground squirrels, and chipmunks. In the fall bears put on fat by gorging on berries and pine nuts. While bears are denning, their temperatures drop 15° F and their bodies slow down



Lassen is home to American Black Bears, and many of these animals instinctively hibernate through our long winter.

Bears may wake up but will not eat, urinate, or defecate. Female bears give birth during hibernation.

to reduce energy consumption. Even so, bears will burn 15-40 percent of their body fat over the winter, requiring a bear to consume 20,000 calories a day or more in preparation for winter hibernation.

Animals that confront winter have a wide variety of adaptations for survival. Adding fat and gaining weight for hibernation are adaptations. Storing food is a common behavioral adaptation: Beavers stash twigs underwater where they will be available all winter. Pikas, the "haymakers of the mountains," dry grasses in summer for consumption under winter's blanket of snow.

Many small animals take advantage of the insulating value of the snow itself. Once the snow cover is about eight inches deep, the temperature at ground level becomes almost constant regardless of how cold it gets above. Voles remain active all winter by living under the snow where their food is still available and they can build warm nests of grass. Unfortunately for voles, weasels will successfully hunt them in their own tunnels, even using the nests as sleeping quarters, and lining the nest with the fur of the previous occupants.

Surviving the winter season can be challenging for not only Lassen's wildlife, but for park visitors as well. Visitors must be prepared to deal with rigors of winter. The basic survival strategy is the same; stay warm, have plenty of food and water, and recognize your limits in mountain weather conditions.



California Tortoise Shell butterflies can survive the Lassen winter in their adult stage by producing glycerol, a natural antifreeze like liquid.

Update: Kohm Yah-mah-nee Visitor Center

The construction schedule of Lassen Volcanic National Park's new Visitor Center has been delayed. The National Park Service was unable to award a contract for the project. The bid process for the project reflected the steep escalation of building costs that exceeded the project's budget. The park is now working with architects and engineers on a redesign of the building to bring building costs within budget. The goal is to award this contract during 2006.

Welcome!

I would like to welcome you to Lassen Volcanic National Park and all that it has to offer. Whether you enjoy the late fall hikes or a winter full of snowshoeing, cross-country skiing and snow play you will find some of the best of these activities here in Lassen. Please make your visit safe and enjoyable by planning ahead. Our staff can provide details about trails, winter activities, weather, and road and avalanche conditions.

This fall and winter season will be very special for me as Lassen's new superintendent. My family has spent many summer vacations camping, hiking and fishing in Lassen and the surrounding area. I have dreamed of coming to this park and am very excited to be here. I have served the past ten years as the Superintendent of Mojave National Preserve where I enjoyed the beauty of the desert. I know I will love the majestic landscapes of Lassen Volcanic National Park.

I am looking forward to working on the new visitor center project and with the employees here at Lassen. We hope to provide you every opportunity to have a safe and wonderful visit.

Mary Martin
Superintendent

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This winter's park newspaper was made possible by a donation from the Lassen Loomis Museum Association. www.lassenloomis.info



National Park Service
U.S. Department of the Interior

Lassen Volcanic National Park
P.O. Box 100
Mineral, CA 96063



National Park Service
U. S. Department
of the Interior



Established first as Cinder Cone and Lassen Peak National Monuments in 1907, Lassen Volcanic became a national park in 1916 because of its significance as an active volcanic landscape. Lassen Peak began erupting in 1914, had its most spectacular activity in 1915, and had minor activity until 1921. All four types of volcanoes in the world, plus active hydrothermal areas, are found in Lassen Volcanic's 106,000 acres. Lassen Peak may be the largest plug dome volcano in the world. It is considered to be active today.

CONTACT INFORMATION

EMERGENCIES
Dial 911

INFORMATION
Park Headquarters (Mon.-Fri.)
(530) 595-4444
Telephone Device for the Deaf (TDD):
(530) 595-3480
Loomis Ranger Station
(Call on Weekends, Winter Only)
(530) 595-4444 ext. 5187

FAX NUMBER
(530) 595-3262

PARK WEB SITE
<http://www.nps.gov/lavo>

MAILING ADDRESS
Lassen Volcanic National Park
P.O. Box 100
Mineral, CA 96063-0100

LOST & FOUND
(530) 595-4444 ext. 5147

PROTECTION RANGER ASSISTANCE
(530) 595-4444 ext. 5155
Loomis Ranger Station
(Call on Weekends, Winter Only)
(530) 595-4444 ext. 5187

The National Park Service cares for the special places saved by the American people so that all may experience our heritage.

Fall and Winter Activities

AT THE EDGE OF LASSEN'S WILDERNESS, the solitude can be so deep that your ears ring with the absence of sound. On mornings after snowfall, the landscape glints as if the sky had overturned, spilling the Milky Way across the soaring peaks.

As the sun climbs, things begin to stir in the Park. Clark's nutcrackers call to each other across the southwest red fir forest. The nightly forays of foxes and pine martens are revealed by prints in the snow. By lunch-time, giddy children are making their own tracks, sliding down the slopes like otters.

Whether you are looking for a contemplative snowshoe trip, family snowplay, or challenging telemark runs, Lassen Volcanic has it all. Although park roads close, the Park is open year-round. Intermittent fall snowstorms usually close the Main Park Road at Sulphur Works near the Southwest Entrance and at the Devastated Area near the North entrance. The road usually closes for the season by late October to mid-November, providing visitors with auto-free opportunities to see another, quieter side of the Park. Here are just a few suggestions to get you started!

Beginning-Intermediate Ski & Snowshoe Routes abound in the Manzanita Lake area (elevation 6,000 feet). The road usually is plowed from the North Entrance to the Loomis Ranger Station (one mile). Over 15 miles of cross-country ski trails begin at the Loomis Ranger Station. More experienced skiers can access challenging mountainous terrain from this area. See page 5 for suggested routes. The Loomis Ranger Station is open intermittently on weekends and holidays for information, maps and books.

Intermediate-Advanced Skiers and Snowshoers delight in the steep terrain and sweeping views from the snow-covered Park Road. See page 4 for touring routes.



Photo used with permission of Sharon Lowe

Bringing the Family?

Fall Hiking & Camping: This is a gorgeous time to visit the Park, with fall colors often persisting through early November. Until serious snowfall begins, you can enjoy fabulous hiking throughout the Park without the heat or crowds of summer. Manzanita Lake and Warner Valley Campgrounds are open (without drinking water) until snow covers the ground.

Snowplay: The Park Road is plowed one mile from the Southwest Entrance to the parking area. Tobogganing, sledding, and tubing are allowed near the Southwest parking area (elevation 6,700 feet) and snowboarding is allowed ¼ mile from the parking area.

Snow Camping is available at the Southwest Campground. Vault toilets are available nearby, but there is no water available. Free permits for wilderness snow camping are available at contact stations and the information board in the Southwest Entrance parking area.

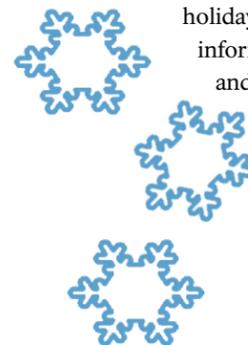


Chaos Crags touring route at dusk

(Photo by S. Ochs)

Snowshoe Walks and Winter Survival Programs are available at the Southwest parking area.

Need more information? Park Headquarters in Mineral is open Monday through Friday (closed holidays) for information, maps and books.



Ranger-Led Activities

Snowshoe Walks

Join a park ranger for a one to two mile adventure exploring winter ecology or Lassen's geologic history. Wear boots and dress warmly. Participants must be at least eight years old and be able to withstand moderate physical exertion at 7000' elevation. Snowshoe walks are first-come, first-served.

Snowshoe walks are held Saturdays from January 7 through April 1. Meet the ranger at 1:30 p.m. by the Information Station in the parking area near the Southwest Entrance for this 1 1/2 to 2 hour program.

For safety reasons infants and children in carriers are not allowed on snowshoe walks.



Ranger-led program at Sulphur Works

(NPS Photo)

The acquisition and maintenance of the snowshoes has become quite expensive. A \$1 donation is requested for each pair of snowshoes used. Snowshoes are provided for the ranger-led walk only.

Group Programs

Snowshoe walks for schools and organized groups of 10 or more persons require reservations well in advance. Reservations can be made as early as November 1 at 8 a.m. for winter school or group programs (dates fill quickly). Programs cover topics such as winter ecology, winter survival, and snow shelters. For more information, please telephone (530) 595-4444 ext. 5133, Monday through Friday.



You Need To Know

For Your Safety

- Please remember that Lassen Volcanic National Park is a wild area with natural wonders that are also potential hazards
- The National Park Service cannot guarantee your safety
- Bring a first aid kit, high energy food, water, and extra clothing
- Prepare for the unexpected- equipment failure, injury, or illness and wet winter storms can turn a day trip into an agonizing ordeal.
- An emergency phone is available at the Southwest Entrance Station building.

Roads

- Carry tire chains in your vehicle
- The Loomis Ranger Station is at 6000' elevation and the Southwest Entrance is at 6700' elevation
- Be alert for icy road conditions and drifting snow

Park Road Closures

- Call Park Headquarters for current road information at (530) 595-4444
- The Main Park Road usually closes by late October for the season due to snow. Visit the road conditions and spring road opening webpage at: http://www.nps.gov/lavo/lassen_roadsandtrails.htm
- Plowing usually begins on the Main Park Road in early April; the road usually opens by mid-June
- The Butte Lake, Warner Valley and Juniper Lake roads close for the season due to snow by late October and usually reopen by late June

Trails

- Call Park Headquarters for current trail information at (530) 595-4444
- Be aware that thermal areas may be covered by snow and that the snow may be dangerously thin and could collapse at any time
- Do not walk or ski across lakes
- Snowmobiling is not permitted anywhere within the boundaries of Lassen Volcanic National Park. Please ask a ranger about snowmobile trails outside the Park.

Campground

- The Southwest Campground is open for snow camping with vault toilets available, but no water; park only in the designated overnight parking area
- Fires and fire pans are not permitted
- The campground is free this year, but please register at the entrance station.

Accessible Facilities

- Park Headquarters in Mineral: Information Desk, restroom, water fountain
- Manzanita Lake: Loomis Ranger Station, restroom

Pets

- Pets are not permitted away from plowed roads or parking areas and must be on a leash and restrained at all times

For a complete listing of park rules and regulations, please ask at Park Headquarters or the Loomis Ranger Station.

Into the Wilderness

CROSS-COUNTRY SKIERS AND snowshoers who venture into Lassen's backcountry can expect spectacular vistas and snowy solitude. Adequate preparation and precaution may ensure a safe and enjoyable experience. Call Park Headquarters or the Loomis Ranger Station in advance for information on snow, weather, and backcountry conditions.



Porcupine feeding in a red fir tree

Water, Food, Clothing, Supplies

- Carry water; exercising in dry high-elevation air makes one particularly susceptible to dehydration
- Purify park surface water and melted snow before drinking by using 2-micron filters (or better) and boiling 5 minutes to avoid Giardia
- Potable water is not available at the Southwest parking area. Potable water is available near the Loomis Ranger Station (only small containers will fit under the faucets)
- Store food and trash in a canister or hang out of reach of animals
- Always carry waterproof cold weather gear, even on sunny days
- Layer clothing to maintain an even temperature; excessive perspiration can lead to hypothermia
- Carry a topographic map and compass and know how to use them
- Pack an emergency ski tip, complete extra binding, and repair manuals

Day Users

- Always sign in/out on trail register stands at the Southwest parking area and at the trailhead by the Loomis Ranger Station in the Manzanita Lake area
- Registration is helpful should search and rescue assistance be necessary

Overnight Users

- A wilderness permit is required; ask about areas closed to camping
- Wilderness permits are available at Park Headquarters in Mineral (open Monday through Friday from 8 a.m. to 4:30 p.m., closed holidays) or by calling (530) 595-4444; permits are available during office hours on weekends at park entrance stations and at the Southwest parking area after hours. An application for a wilderness permit can be found at <http://www.nps.gov/lavo>
- Park in designated overnight parking area ONLY; vehicles can be damaged by snow removal equipment if parked in other areas

Pets, Fires, Litter

- Pets are not permitted in the backcountry or in any unplowed areas
- Open fires and fire pans are not permitted; use campstoves only
- Carry out all litter
- Dig latrines and bury human waste at least one foot deep in snow away from trails and drainages; carry out all waste paper

For Your Safety

- Always travel with a partner or a group
- Select a travel route familiar to at least one member of your party and equal to your experience and ability
- Be prepared for winter weather extremes (gale winds, subzero temperatures, blowing snow, whiteout conditions) which can kill unprepared travelers
- Postpone or terminate your trip if a storm is forecasted or appears to be building; weather can be unpredictable and fast changing
- If caught in a storm, wait it out in a sheltered, avalanche-safe area until conditions stabilize
- Allow extra travel time during soft snow conditions
- Be aware that thermal areas may be covered by snow and that the snow may be dangerously thin and could collapse at any time
- In case of emergency, the nearest telephone or ranger is at the Southwest parking area or Loomis Ranger Station
- Remember: your best chance of survival is to use your own resources; be prepared and stay alert

Climate Statistics

PARK HEADQUARTERS (ELEVATION 4850')

	Oct.	Nov.	Dec.	Jan.	Feb.	March	April
Average Maximum Temp (°F)	71	57	48	48	50	54	62
Average Minimum Temp (°F)	29	20	15	15	15	20	24
Lowest Minimum Temp (°F)	15	7	-12	-13	-7	-2	6
Average Snowfall (Inches)	1.0	10.5	27	31	30	31	11.25

MANZANITA LAKE (ELEVATION 5850')

	Oct.	Nov.	Dec.	Jan.	Feb.	March	April
Average Maximum Temp (°F)	69	56	50	50	51	53	61
Average Minimum Temp (°F)	30	21	14	13	13	16	23
Lowest Minimum Temp (°F)	10	2	-13	-13	-11	-7	-2
Average Snowfall (Inches)	3	18	31	34	28	33	14

Sunrise and Sunset Times for Chester (times calculated for flat terrain)

Day	November		January		February	
	Rise	Set	Rise	Set	Rise	Set
01	0635	1702	0709	1639	0728	1650
10	0645	1652	0717	1639	0727	1658
20	0657	1644	0724	1642	0723	1709

Day	February		March		April	
	Rise	Set	Rise	Set	Rise	Set
01	0714	1724	0638	1757	0549	1829
10	0704	1734	0624	1806	0634	1939
20	0652	1746	0608	1817	0619	1949



Cross-Country Ski and Snowshoe Routes

Virtually the entire Park is open to the skier or snowshoer. Most routes described below are accessible with snowshoes or skis with climbing skins. Summit conditions on the various peaks may require an ice axe or crampons. These routes provide a variety of terrain and scenery. Sudden storms or avalanche conditions may be encountered. The wise winter traveler will turn back at any sign of inclement weather.

Visitors exploring Lassen's backcountry in the winter should take special precautions. Heavy snowfall and rugged terrain create serious avalanche conditions throughout the Park. In addition to the ten essentials, it is strongly recommended that all visitors carry avalanche gear. This includes: basic knowledge of route finding and snow science, a probe pole, avalanche beacon and a lightweight shovel.

Wilderness permits are available free of charge from a ranger or at www.nps.gov/lavo. No backcountry camping is allowed within one mile of the plowed areas. The Southwest Campground provides easy access for snow camping. All skiers and snowshoers are asked to sign in/out for day and overnight trips. Registers are located near the restrooms. Common courtesy asks that snowshoers and snow players stay out of cross country ski tracks.

Park Road from Southwest Area

Classification: Beginner to advanced
Distance: Southwest parking area to Lake Helen 6.2 mi., to road summit at base of Lassen Peak 7 mi., to Kings Creek Meadows 11.6 mi., to Summit Lake 16.5 mi., to Hat Lake 19 mi., to Manzanita Lake 30 mi.
Elevation: Start (Southwest) 6700', high point 8500', Manzanita Lake 5850'
Average Skiing Time (one way): Lake Helen 3 hrs., Kings Creek 5 hrs., Summit Lake 8 hrs., Manzanita Lake 2 days
 The route starts at the Southwest parking

area and follows the unplowed Park Road through the Park to Manzanita Lake. Hazardous, steep side hills with icy conditions may be encountered. The Diamond Peak area has a history of avalanches. This area should be avoided by using the marked "cutoff" trail just north of Windy Point (see map below). By midwinter in the high, open country between the head of Little Hot Springs Valley and Reading Peak, it is difficult to find any trace of the road. High winds and whiteout conditions are common in this same area during winter storms. The road crosses several avalanche paths. Terrain off the roadway is generally steep south of Kings Creek and gentle northward. Good overnight snow camping areas (with backcountry permit) can be found a short distance from the road north of Diamond Peak, near Emerald Lake and Lake Helen, Kings Creek Meadow, Summit Lake and Hat Lake. This route offers good access into the heart of Lassen's backcountry.

Ridge Lakes

Classification: Advanced intermediate
Distance: 2.5 mi. round trip
Elevation: Start (Sulphur Works) 7000', high point 8000'
Average Skiing Time (one way): 1 hr.
 To reach this trail, follow the unplowed Park Road from Southwest parking area about ¾ mi., cross the bridge just before reaching Sulphur Works, then turn left (northwest) away from the road and follow the drainage just west of the Sulphur Works thermal basin.

Sulfur emissions are prevalent throughout the Little Hot Springs Valley. These heated gases melt out snow caverns which may be unrecognizable due to new snow covering the openings.

Fatalities have occurred from visitors breaking through snow and falling into these heated caverns. Multiple vents occur in terrain that appears to be skiable.

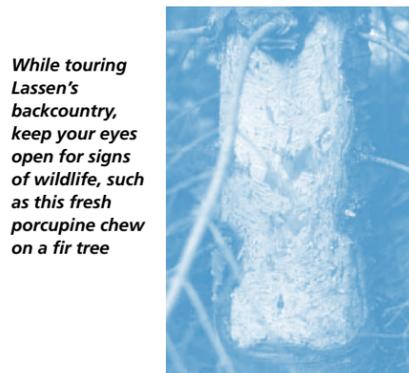
Know where the vents are and use caution throughout the valley.

The trail climbs rapidly to the Ridge Lakes basin. Several good camping spots (with backcountry permit) can be found on the north shore of Ridge Lakes. If weather is severe, more protected camping can be found about ¼ mi. below Ridge Lakes along its outlet creek. Avoid the area just south of Ridge Lakes during periods of avalanche danger. The trail loops north from Ridge Lakes to rejoin itself about ¼ mi. below the basin.

Lassen Peak

Classification: Advanced
Distance: 20 mi. round trip
Elevation: Start 6700', summit 10,457'
Average Skiing Time (round trip): 3 days
 Most skiers and snowshoers allow 3 days to summit Lassen Peak in the winter. A likely itinerary includes setting up camp near Lake Helen (day 1), summiting Lassen (day 2), return trip (day 3). Remember that conditions on the mountain are most stable in early morning hours, afternoon travel is not recommended. A backcountry permit is required for all overnight visits to the Park.

The safest route up the mountain follows the summer trail through the forested section and continues on the southeast ridge to the summit. Weather conditions on Lassen Peak can deteriorate rapidly, creating whiteout conditions and high winds.



While touring Lassen's backcountry, keep your eyes open for signs of wildlife, such as this fresh porcupine chew on a fir tree



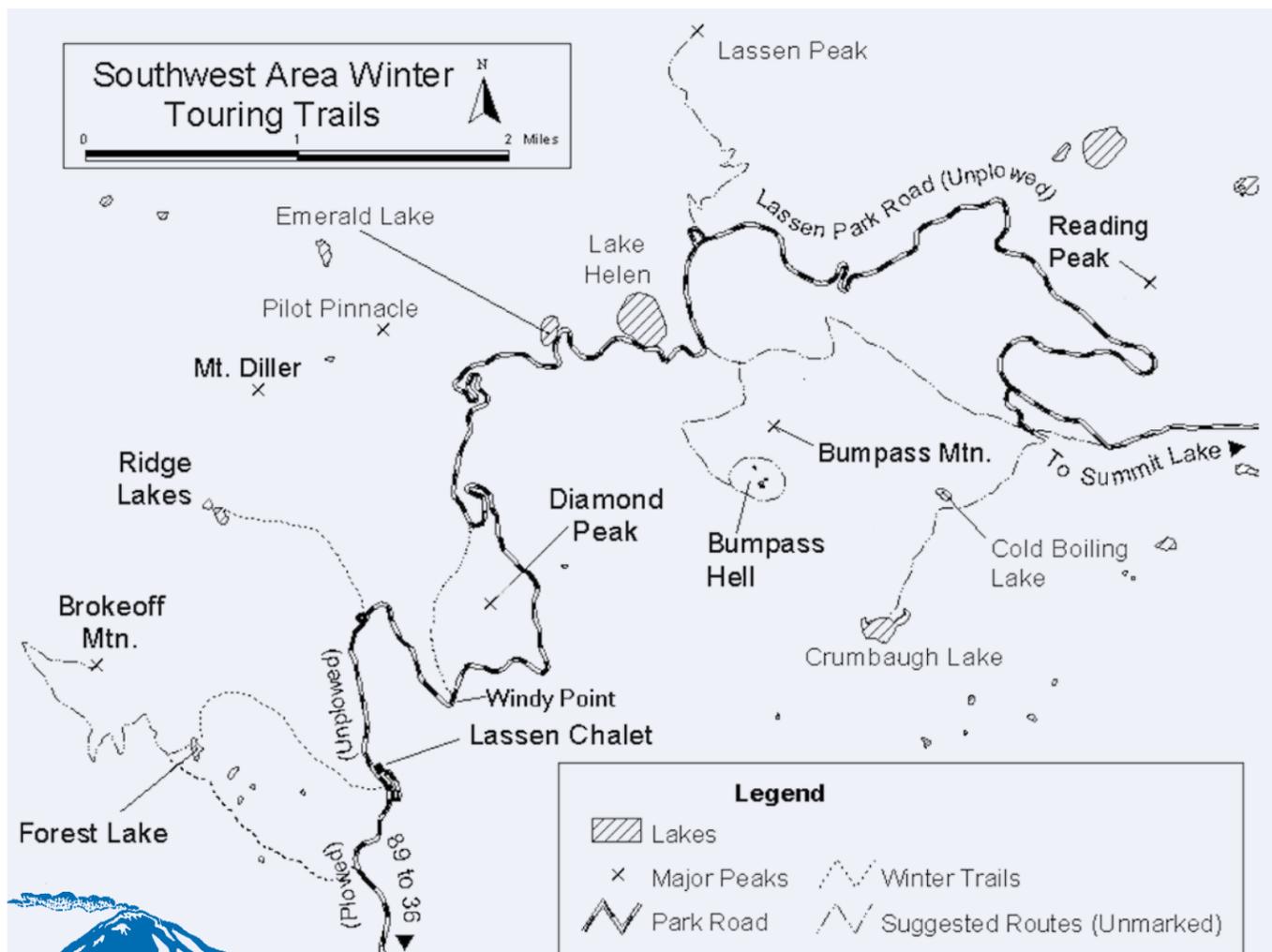
Forest Lake

Classification: Intermediate
Distance: 1 mi.
Elevation: Start 6,500', high point 7,500'
Average Skiing Time: 2 hr.
Description: The ski trail is marked by placards with orange diamonds on a white background. These markers are pointed in the direction of travel. The trail begins at the Southwest parking area and follows the unplowed Park Road 100 yds, then turns left (south) and follows a shallow bowl several hundred yards until another larger bowl is reached. At this point the trail turns right (west) and passes through the bowl to a flat area. Look for a ridge on the right (north). Follow the crest of the ridge toward the west until the trail markers indicate a turn to the left (south) up a steep face. Follow the markers to the southwest, staying above some large open areas to the south. On reaching the next ridge, turn right (west) and follow the ridge to the open bowl area beneath Brokeoff Mountain. Do not travel into the bowl--turn left (south) and follow the markers to Forest Lake.

Brokeoff Mountain

Classification: Advanced
Distance: 4 mi. one way
Elevation: Start 6650', summit 9250'
Average Skiing Time (one way): 4 hrs.
 Most skiers access the summit via the southwest ridge. Nevertheless, getting onto this ridge can be difficult as the various routes inevitably take a traveler through hazardous canyons. Traditional routes often use the Forest Lake trail or the summer trail which begins near the park entrance. Numerous avalanche paths exist on all aspects of the mountain. Travelers should use extreme caution. Many skiers reserve travel on Brokeoff Mountain until spring when snow conditions traditionally stabilize.

Summit conditions during inclement weather often include high winds with little or no visibility. Large, overhanging snow cornices at the summit make any approach to the edge extremely dangerous.





Manzanita Lake Snowshoe Loop

Classification: Beginner

This trail is recommended for foot traffic only, not skiing

Distance: 1.6 mi. around lake

Elevation: Start 5800', high point 5850'

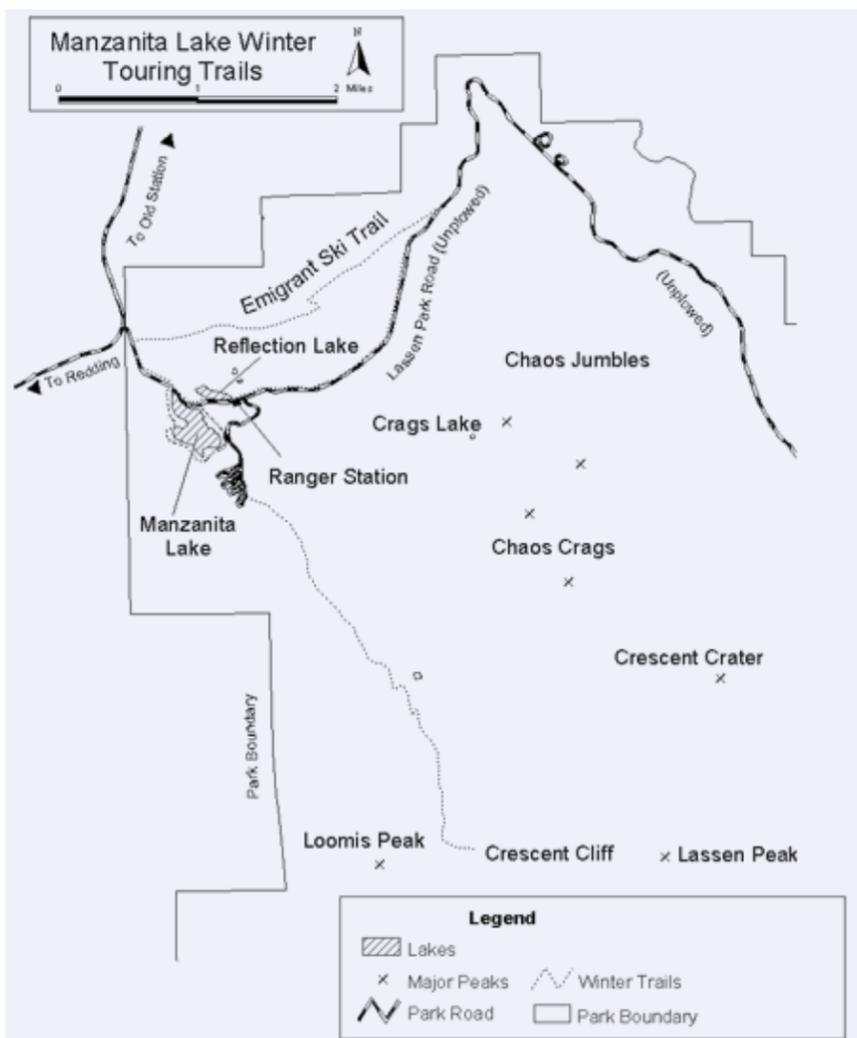
Average Time (round trip): 1.5 hr.

The route starts near the Loomis Ranger Station and circles the lake.



Snowshoe hare

PICKART 84



The Lassen Volcanic Backcountry Ski Patrol is on patrol! They can be identified by nametags, red jackets and the universal first aid symbol. They are volunteers who work weekends. They can provide information about routes, updated avalanche assessments and the Park in general. You may also meet the ski patrollers snow camping at the Southwest or Devastated Areas where they may be available after hours in the case of an emergency.

Nobles Emigrant Trail

Classification: Beginner to intermediate

Distance: 7 mi.

Elevation: Start 5850', high point 6350'

Average Skiing Time (round trip): 3-4 hrs.

The trail starts at the Park Road across from the Loomis parking area. The route joins the historic Nobles Emigrant Trail at the base of Table Mountain. The trail then climbs a portion of the southeast flank of Table Mountain and continues through heavy fir forest at a gradual descent, then rejoins the Park Road at Sunflower Flat. Turn right (north) to follow the Park Road back to make a loop.

Manzanita Creek

Classification: Intermediate

Distance: 7.5 mi.

Elevation: Start 5850', high point 7400'

Average Skiing Time (round trip): 6 hrs.

The trail leaves from the Loomis Ranger Station, crosses the footbridge, and turns right onto the Manzanita Lake Campground road. Travel through the campground to the Manzanita Creek trailhead sign. The route is mostly a gradual climb of over 1000 feet. Suitable snow camping sites are found along the upper portion. Make certain to obtain a backcountry permit. Beware of Loomis Peak, which has several avalanche chutes that may reach the trail toward the upper end.



Ski Tours in Lassen Volcanic National Park \$14.95; Available through the Lassen Loomis Museum Association. llma@citlink.net or 530-595-3399

Near the Park: McGowan Lake & Nanny Creek

Classification: Beginner to intermediate

Distance: 5 mi. to Nanny Creek

Elevation: Start (Highway 89) 6080', end (Highway 36) 5110'

Average Skiing Time (one way): 2 hrs.

The trail leaves Highway 89 on the unplowed McGowan Lake Road (3.5 miles south of the Southwest entrance). The route is marked with blue and white ski touring signs and proceeds across a flat and slightly descending landscape. Skiers will pass through largely forested areas with some meadow clearings, ending at Highway 36 at Nanny Creek. The trail does not go to McGowan Lake which is on private property. This trail makes for a good one way ski if vehicles are available for shuttle.

Lake ice is dangerous and unstable. Lake shores may be difficult to recognize due to snow. Please stay off lake ice.

Be "Avalanche Aware"

ALWAYS OBTAIN WEATHER AND avalanche information before entering the Park's backcountry (see Color Avalanche Danger Descriptors on back page). At times, backcountry travel may not be advised due to high or extreme avalanche conditions.

STORMS

- 80% of all avalanches occur during or soon after a storm.
- When new snow falls on top of old snow, the avalanche danger is much higher.

SNOWFALL

- Snow falling at a rate of 1" or more per hour increases avalanche danger rapidly
- With high winds, leeward slopes can become dangerously loaded with snow, even with just a few inches of snowfall

WEATHER CONDITIONS

- Rapidly changing weather conditions (wind, temperature, precipitation) can cause unstable snow

SOUNDS

- Unstable snow can settle beneath a skier's weight with a "whumff"

RECENT AND PRIOR AVALANCHE ACTIVITY

- If you see a new avalanche, suspect dangerous conditions
- Avoid old slide paths, steep open gullies/slopes; watch for areas with small trees bent over and trees with broken limbs

ROUTE SELECTION

- If you must cross a dangerous slope, stay high and near the top; avoid avalanche fracture lines
- If you must climb or descend a dangerous slope, go straight up or down; do not traverse back and forth
- Areas of dense timber, ridges, or rocky outcrops can be safer; use them for lunch and rest stops
- Spend as little time as possible on open slopes
- Only one person should cross a dangerous slope at a time
- Snow softens as the day grows warmer, this can make a return trip more difficult.
- Each person should carry a shovel
- Carry and learn to use an avalanche transceiver



Steep slopes and snow cornices on Bumpass Mountain

(NPS Photo by K. Pietras)

IF YOU ARE CAUGHT IN AN AVALANCHE

- Discard all equipment
- Make swimming motions and try to stay on top, working your way to the avalanche's side
- If you are pulled beneath the surface, keep your mouth closed
- As you begin to slow to a stop, make air space in front of your face with your hands; keep your arms close to your body
- Try to remain calm; you will use less oxygen

IF YOU ARE A SURVIVOR

- Mark the place where you last saw the person buried and search directly downslope
- Probe the snow in an even line across the snowfield using ski poles, shovels, or skis
- If you can, send someone for help
- If you are alone, do not abandon your search and go for help unless it is minutes away; the buried person has less than a 50% chance of survival after 15 minutes



Park Partners



The **Lassen Loomis Museum Association** is dedicated to making your visit a memorable learning adventure. The Association publishes and sells books and other items on the flora, fauna, and history of the park. Profits are used to supply books, posters, maps, and videos to the park's libraries and visitor centers and to support the park's mission, museum exhibits, and other special projects.

I want to invest in the Lassen Loomis Museum Association. I've checked my annual membership option below and will send my check to: Lassen Loomis Museum Association, P.O. Box 220, Mineral, CA 96063.

Membership

- Manzanita Lake
- Chaos Crags
- Diamond Peak
- Emerald Lake
- Brokeoff Mountain
- Lassen Peak

Benefits

- 10% Discount on All Merchandise
- Plus a seven day Park Pass
- Plus "Flowers of Lassen" Book
- Plus a season Park Pass
- Plus "Ishi, the Last Yahi" Video
- Plus a National Parks Pass

Investment

- \$20
- \$50
- \$100
- \$250
- \$500
- \$1,000

Name _____ Phone _____
 Address _____
 City _____ State _____ Zip Code _____

A portion of your donation may be tax deductible. Please make checks payable to the **Lassen Loomis Museum Association**. For more information about memberships and publications, please call (530) 595-3399 or visit our web site, www.lassenloomis.info.

Lassen Park Foundation, a private, nonprofit foundation, was founded in 1984, for the purpose of providing support for projects in Lassen Volcanic National Park and Lassen National Forest.



Authorized by the National Park Service and working in cooperation with the U.S. Forest Service, the Foundation is able to assist with park needs such as enhanced interpretive and educational activities, trail restoration, wildlife research, and cultural resource projects.

- Enclosed is my donation in the amount of \$ _____
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Mail to **Lassen Park Foundation, P.O. Box 3155, Chico, CA 95927-3155**, or telephone (530) 898-9309. Donations are tax deductible. Please make checks payable to the **Lassen Park Foundation**.

Pass Type	Price	Notes
Vehicle	\$10	Valid for 7 days
Individual	\$5	On foot, bicycle, motorcycle or horse. Valid for 7 days
Lassen Annual Pass	\$25	Covers entrance fee at Lassen Volcanic N.P. and day use fee at Whiskeytown N.R.A. Valid for one year from month of purchase

- Non-profit organizations \$5 per person over 16 years of age; minimum \$10
 - Commercial tour fees based on seating capacity of vehicle
 - For more information contact the Fee Office at (530) 595-4444 ext. 5184

Your Fee Dollars at Work

Fee Projects in Progress

- Disturbed natural areas are being rehabilitated to preserve native plants and animals.
- New wayside exhibits have been constructed and are being installed throughout the park.
- Design is underway for a new Southwest Entrance Station.
- Our park web site is being enhanced for your virtual visits! Read about Fee Demonstration projects on-line at www.nps.gov/lavolfedemo.htm.

Completed Fee Projects

- Bear-proof food storage lockers and trash receptacles are being installed in all the campgrounds to ensure the health and safety of park visitors and bears and other wildlife.
- The plaza and parking lot at the Loomis Museum provides enhanced features to visitors, including a wheelchair-accessible ramp into the museum.
- A water treatment plant has been built to restore potable water to campers at Butte Lake Campground.
- New and improved trail and campground signs have been constructed and installed throughout the Park.
- Permanent museum exhibits in Loomis Museum display Native American baskets, historical objects, and geologic specimens.

Lodging, meals, gifts, and services are available near Lassen Volcanic National Park. Inquiries or reservations should be directed towards the individual business. These businesses' donations helped pay for this issue of *Peak Experiences*.

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South of Park, Highway 36: Mineral

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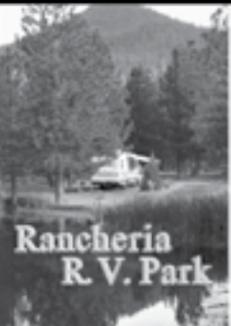
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Be A Volunteer!

You can make a difference in the protection and
preservation of Lassen Volcanic National Park.

The Park has a variety of opportunities for individuals and groups
to volunteer their time and talents from four-hour projects to
long-term positions and internships.

Perhaps you would like to assist with:

- * Clerical Projects
- * Vegetation & Wildlife Research
- * Non-Native Plant Removal
- * Visitor Contact Stations
- * Cultural Resources Work
- * Trail & Campground Maintenance
- * Visitor & Education Activities
- * Recycling
- * Camp hosting
- * Computer Projects
- * Photography
- * Search & Rescue
- * Ski Patrolling

Your volunteer work could provide you with an enjoyable,
rewarding experience and at the same time help care for Lassen
Volcanic National Park for this and future generations.

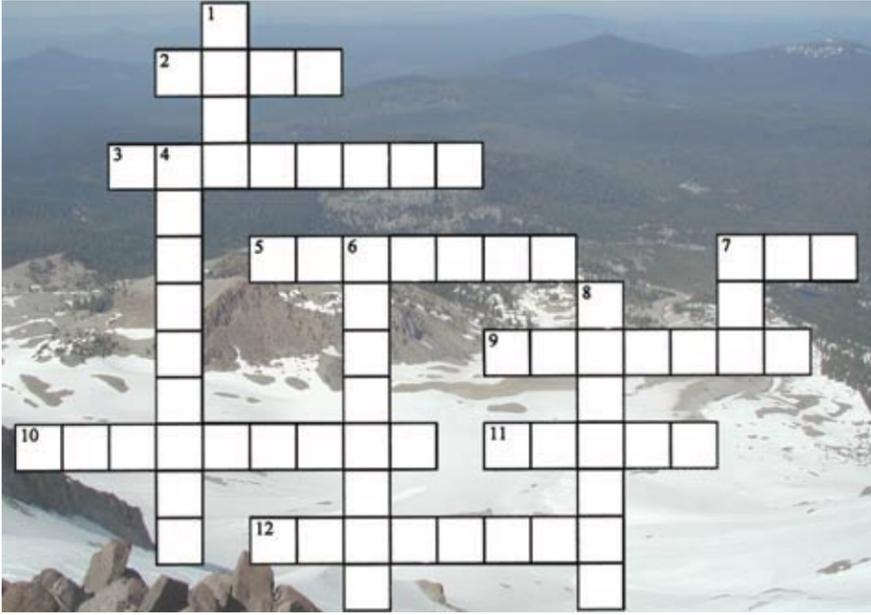


For more information about the park volunteer
program, please contact:

**Park Volunteer Program Manager,
Lassen Volcanic National Park,
P.O. Box 100,
Mineral, CA 96063-0100
Telephone: 530/595-4444 ext. 5133
E-mail: nancy_bailey@nps.gov**

A Lassen Winter Crossword Puzzle

(All answers can be found in this edition of *Peak Experiences*.)



Across

2. Lassen Peak is one of the largest plug ____ volcanoes in the world.
3. Lassen Volcanic became a ____ park in 1916.
5. Many birds ____ during the Lassen winter, relocating to places like Mexico.
7. Black bears burn 15-40% of their body ____ over the winter.
9. ____ stash twigs underwater so they will be available as food during the winter.
10. All four types of ____ in the world are found in Lassen Volcanic National Park.
11. Female black ____ give birth during hibernation.

12. On Saturdays, rangers lead ____ walks exploring Lassen's geologic history and winter ecology.

Down

1. Snow that starts out hard in the morning can become ____ later in the day.
4. When new snow falls on old snow, ____ danger is much higher.
6. California Tortoise Shell Butterflies can survive the Lassen winter in their adult stage by producing ____, a natural anti-freeze like liquid.
7. Many animals which tolerate Lassen's winter have a thick coat of ____ to keep them warm.
8. Lassen's western ____ can fly over 3000 miles between its summer and winter homes.



Photo by S. McCullough

Did You Know?

Mountain hemlock

If your winter visit takes you to the higher elevations of the park (above 7,000 feet), be sure to look for mountain hemlock. Young trees will be completely covered by snow except for their characteristic drooping tips.

The spread of mountain hemlock into the higher elevations of the park occurred relatively recently. This species is adapted to living in harsh, cold, high-elevation places that other species can not tolerate. It can colonize a new territory after a cooling trend clears other species out of the marginal locations it favors. That is what happened at Lassen. After a cooling trend in the mid-1800s known as the "Little Ice Age" ended, the climate warmed up, the higher elevations around Lassen Peak became survivable again, and mountain hemlocks moved in.

Avalanche Danger Color Coded System Always plan ahead when traveling into the backcountry. Before leaving home, you can learn more about avalanche safety and check on current conditions in the Lassen area by calling Park Headquarters. The National Avalanche Center's website, www.avalanche.org/~nac , is an excellent source for safety tips and information on avalanche danger. Check weather reports and avalanche conditions posted at the Southwest parking area and Loomis Ranger Station. Lassen Volcanic uses the standard color-coded system shown at right.	Danger Level	Avalanche Probability and Avalanche Trigger	Degree and Distribution of Avalanche Danger	Recommended Action in the Backcountry
	LOW (green)	Natural avalanches very unlikely. Human triggered avalanches unlikely.	Generally stable snow. Isolated areas of instability.	Travel is generally safe. Normal caution is advised.
	MODERATE (yellow)	Natural avalanches unlikely. Human triggered avalanches possible.	Unstable slabs possible on steep terrain.	Use caution in steeper terrain on certain aspects
	CONSIDERABLE (orange)	Natural avalanches possible. Human triggered avalanches probable.	Unstable slabs probable on steep terrain.	Be increasingly cautious in steeper terrain.
	HIGH (red)	Natural and human triggered avalanches likely.	Unstable slabs likely on a variety of aspects and slope angles.	Travel in avalanche terrain is not recommended. Safest travel on windward ridges of lower angle slopes without steeper terrain above.
	EXTREME (black)	Widespread natural or human triggered avalanches certain.	Extremely unstable slabs certain on most aspects and slope angles. Large, destructive avalanches possible.	Travel in avalanche terrain should be avoided and travel confined to low angle terrain well away from avalanche path run-outs.



Gear Up For Safe Driving In Snow Country!

Please remember that high-elevation roads are often icy or snow-covered during the fall and winter and can be very hazardous, especially when temperatures drop during the evening and early morning hours.

The main park road that connects Highway 89 through the park is closed throughout most of the winter. Visit the park road status website at http://www.nps.gov/lavo/lassen_roadsandtrails.htm for up-to-date information. The 17 Road (31N17 from Mineral to Viola), A-21, and other U.S. Forest Service and county roads close for the winter.

Carry tire chains in your vehicle from October through May. Chain requirements can be instituted at any time; even four-wheel drive vehicles with snow tires can be required to chain up. Watch for highway advisories posted in Red Bluff and Redding. Caltrans will post chain requirements on Highways 36 and 44.

To check for chain requirements, road closures, or other highway advisories before your trip, call the Caltrans Highway Information Network at 1-800-427-7623 or go to the Caltrans website at www.dot.ca.gov/hq/road-info. Caltrans also offers important tips for winter driving in snow country at www.dot.ca.gov/hq/roadinfo/wntdriv.htm.