

## Sequoia and Kings Canyon

Sequoia and Kings Canyon National Parks  
California

National Park Service  
U.S. Department of the Interior

From atop Moro Rock you can grasp the multiple superlatives that brought Sequoia — and eventually Kings Canyon—into the National Park System so early that Sequoia is now our second oldest national park. To the north lies the Giant Forest plateau where sequoias rise above their forest neighbors. In cathedral-like Giant Forest stands the 275-foot-tall General Sherman giant sequoia tree, whose trunk weighs an estimated 1,385 tons and whose circumference at the ground is nearly 103 feet. To the west, in contrast to these gargantuan conifers, are the dry foothills with their oak trees and chaparral vegetation descending toward the San Joaquin Valley. To the south, and down over 5,000 vertical feet, the Middle Fork of the Kaweah River threads its rugged canyon. To the east snowcapped peaks of the Great Western Divide and the Kaweah Peaks top out on Mount Kaweah at 13,802 feet. Just out of sight beyond the divide the highest mountain in the contiguous 48 states, Mount Whitney, reaches 14,494 feet of elevation. Big trees, high peaks, and deep canyons in North America’s longest single continuous mountain range: superlatives abound amidst glorious scenery. Pioneering conservationist John Muir explored and named the Giant Forest. “When I entered this sublime wilderness the day was nearly done,” he observed, “the trees with rosy, glowing countenances seemed to be hushed and thoughtful, as if waiting in conscious religious dependence on the sun, and one naturally walked softly and awestricken among them.” May you follow in Muir’s footsteps.

### Earth’s Largest Tree

In volume of total wood the giant sequoia stands alone as the largest living tree on Earth. Its nearly conical trunk—like a club, not a walking stick—shows why. At least one tree species lives longer, one has a greater diameter, three grow taller, but none is larger. In all the world, sequoias grow naturally only on the west slope of the Sierra Nevada, most often between 5,000 and 7,000 feet of elevation. There are some 75 groves in all. The General Sherman Tree is an estimated 2,200 years old. Its largest branch is almost seven feet in diameter. Every year the General Sherman grows enough new wood to make a 60-foot-tall tree of usual proportions.

“Most of the Sierra trees die of disease, fungi, etc.,” John Muir wrote, “but nothing hurts the Big Tree. Barring accidents, it seems to be immortal.” Muir was partly right. Chemicals in the wood and bark provide resistance to insects and fungi, and thick bark insulates them from most fire. The main cause of sequoia deaths is toppling. They have a shallow root system with no taproot. Soil moisture, root damage, and strong winds can lead to toppling.

## **Sequoia, America's Second Oldest National Park**

San Joaquin Valley residents and others urged Congress to protect Sierra tracts from logging in the 1880s. Some park proponents sought to protect water supplies for irrigation; others, the Big Trees. Preserving land for scenic and recreational values was an infant idea then.

Sequoia National Park was created on September 25, 1890. A week later Congress tripled its size and created General Grant National Park to protect Grant Grove. In 1893 a Sierra Forest Reserve protected more lands, and in 1926 Kern Canyon was added to Sequoia. In 1940 General Grant was merged into the newly-created Kings Canyon National Park. In 1978 Mineral King was added to Sequoia. Since 1943 Sequoia and Kings Canyon have been managed jointly.

### **John Muir**

Conservationist John Muir's response to logging the giant sequoias was: "As well sell the rain clouds and the snow and the rivers to be cut up and carried away, if that were possible." Muir explored and named the Giant Forest, site of four of the world's five largest trees. He pioneered Mount Whitney's steep east face. And he proved the geologic role of Sierran glaciers, a new theory then that was disputed by the California state geologist, Josiah D. Whitney.

### **Giant Sequoia Ecology**

Sequoias don't die of old age and are resistant to fire and insect damage. Most die by falling over. These huge trees sprout from seeds as small and light as oat flakes. Mature trees may yearly produce 2,000 egg-sized cones—bearing 400,000 seeds dispersed only as cones open. Cones hang on trees, green and closed, up to 20 years. Douglas squirrels (above) or larvae of a cone-boring beetle may make a few cones open, but fire is the key to seed dispersal and seedbed fertility. It makes the cones dry, open, and drop seeds. It lets sunlight in and burns logs and branches on the forest floor to ashes as fertilizer.

### **Deep Canyons and High Peaks**

These parks encompass the most rugged portions of the Sierra Nevada. From the highest peaks in the lower 48 states, Ice Age glaciers descended to carve some of the country's deepest canyons. In their upper reaches these gorges show the U-shaped profile characteristic of glacial gouging. At lower elevations they resume the V shape of water-carved canyons. In Sequoia the Generals Highway climbs the stream-cut walls of the Kaweah canyon. Kings Canyon Scenic Byway passes through both geologic profiles; where it ends, you can stand on canyon floor scoured flat by glaciers and stare up at canyon walls rising nearly a mile.

Extreme elevation change—from 1,500 to 14,494 feet—creates a huge variety of habitats. Plants and animals here inhabit life zones ranging from desert heat to arctic cold. This rich diversity stands as one of the values Sequoia and Kings Canyon National Parks preserve for the world.

### **The Snowy, Sawtoothed Mountain Range**

Over 400 miles long and 60 to 80 miles wide, the Sierra Nevada exceeds the whole Alps area—French, Swiss, and Italian. Palisade Crest in Kings Canyon National Park and the Mount Whitney group in Sequoia each boast six peaks over 14,000 feet of elevation.

No roads cross the range here; intimate appreciations of the mountains' scale and grandeur are hard-won afoot or with packstock. Panoramic vistas can be seen from atop Moro Rock; from roadside pullouts along the Generals Highway; from Panoramic Point near Grant Grove; and from roadside pullouts before Kings Canyon Scenic Byway descends into the canyon. The Mineral King valley provides superlative hiking access to meadows, alpine lakes, and Sierra peaks.

Because park roads top out at 7,800 feet of elevation, most people who visit the parks do not experience the alpine country. Above 9,000 feet the harsh climate cannot support tall trees or dense forests. Above about 11,000 feet, no trees grow. Here are mostly boulders, rocks, and gravel punctuated with small alpine lakes, meadows, and low-growing shrubs. Summer flourishes but briefly. Preparing for winter, the marmot stores body fat; the pika stores small piles of hay. Mountain lakes dot Sierran highcountry, many set in cirques, small bowls carved by glaciers.

### **Sierran Wildlife**

Mule deer are prime prey of elusive mountain lions. Pine martens, fishers, and wolverines pursue squirrels and other small animals. Black bears may take fawns or eat carrion but mostly eat vegetation. Marmots and pikas live in mountains. Coyotes, gray fox, bobcats, and ringtails patrol the foothills.

Decades of planting non-native brook, brown, and other trout displaced native rainbow and Little Kern golden trout. Planted fish also diminished amphibian populations, especially frogs.

## **Visiting the Parks**

### **Getting Here**

Vehicle access is by Calif. 180 into Kings Canyon or Calif. 198 into Sequoia. The Generals Highway connects both, making loop trips possible. Vehicles longer than 22 feet (6.7 meters) combined length not permitted between Potwisha and Giant Forest Museum due to road construction. Expect delays. Calif. 180 has fewer curves. There is no road access from U.S. 395 on the parks' east side. Air, bus, Amtrak, and rental cars are available in Fresno and Visalia. Gasoline is not available in the parks.

### **More Information**

The free park newspaper describes park resources and facilities. Call 559-565-3341 for 24-hour recorded information on road and weather conditions (updated daily), camping, lodging, and activities, or to reach a ranger. Or contact:

Sequoia and Kings Canyon National Parks  
47050 Generals Highway  
Three Rivers, CA 93271-9700  
[www.nps.gov/seki](http://www.nps.gov/seki)

### **Activities**

Check bulletin boards for schedules of ranger-led walks and talks.

### **Crystal Cave**

This cool, beautiful cavern is open in summer only. Buy tickets for tours only at Lodgepole and Foothills visitor centers—not at the cave.

### **Food and Lodging**

For reservations in Kings Canyon year-round, call 559-335-5500. Wuksachi Village Lodge is open year-round in Sequoia; call 888-252-5757. Grant Grove and Wuksachi offer food service year-round; Cedar Grove and Lodgepole in summer. Nearby towns offer food and lodging.

### **Camping**

Campground locations range from the warm foothills to cool forest settings; some are open all year. Only Lodgepole and Dorst Creek accept reservations for summer; call 877-444-6777 or visit [www.recreation.gov](http://www.recreation.gov). The Lodgepole, Grant Grove, and Atwell Mill campgrounds are close to sequoias. To ask about reserving group sites (summer use only), call the parks.

### **Protect the Past**

Archeological sites and artifacts and all park resources are protected by law. If you find artifacts or see evidence of collecting, please notify the park.

## **Trails**

Day-hikes are available in all areas. Always use trail maps. **Motorbikes, mountain bikes, and pets are not permitted on any park trail.**

## **Bears**

Black bears are attracted by human food and can cause severe property damage trying to get it. If they succeed they may get aggressive and must be killed, so **proper food storage is required at all times**. Keep all food and odorous items in the metal boxes provided. Lodge guests must bring all items indoors. Keep a clean camp; put all garbage in bear-proof containers. If a bear approaches, scare it away; make loud noises and throw pebbles, but keep a safe distance and use good judgment. There are no grizzly bears in these parks.

## **Please don't feed any wildlife.**

Let them live in natural conditions—for their good and your safety. Rodents here can have fleas carrying plague. Don't try to touch animals. Pets must be leashed at all times.

## **Wilderness permits (fee charged in summer) are required for all overnight wilderness trips.**

Permits can be reserved. Requests must be faxed or mailed no earlier than March 1 and no later than three weeks before the start of your trip. Some first-come, first-served permits are available after 1 p.m. on the day before departure. Ask for specific regulations on use of horses, burros, and llamas. For wilderness information call 559-565-3766.

**Mountain Hazards** Natural areas pose hazards: falling trees, rolling rocks, cliffs, fast rivers, and wild animals. You are responsible for your own safety. Seek first aid at visitor centers. **In an emergency call 911 from any park phone; no coins needed.**

## **Park roads are steep, narrow, and winding.**

Downshift even in automatics to prevent a burned-out transmission going uphill and burned-out brakes downhill. Pull into a safe turnout to look at scenery. Slow-moving vehicles must pull over to let others pass. Seatbelts are required by law. Motorcyclists: watch for oil buildup on roads.

## **Rattlesnakes are common in the parks.**

Always be sure you can see where you step or reach.

Rivers and waterfalls are treacherous, especially in spring and early summer's high water. Be alert for undercut banks and slippery rocks. Fast currents and cold water are a deadly combination. **Don't swim above waterfalls or in swift water.** Keep children in sight.

***Giardia lamblia*** is a protozoan in natural water in the parks. Boil surface water three minutes before drinking.

If you camp or hike in the foothills, check clothes often for ticks. They can carry **Lyme disease**. Get information on removal and bites at visitor centers.

### **Cougars live in these parks.**

Avoid hiking or running alone. Watch children closely. If you encounter a cougar, don't run or crouch down. Stand your ground or back off slowly. Pick up small children. Wave, shout, and throw stones. If attacked, fight back.

### **Lightning Danger**

When a thunderstorm threatens, get in a vehicle or large building. Don't stand under a lone tree. Avoid open areas and water and high places such as Moro Rock. If your hair stands on end, drop to your knees and bend forward with your hands on your knees. Don't lie flat.

**Winter** Entry roads are kept open to Grant Grove and Giant Forest/Lodgepole but may be closed temporarily for plowing. The Generals Highway between Lodgepole and Grant Grove is usually kept open—except during and after heavy storms. **Tire chains may be required any time.** Ask about dangers of hypothermia, carbon monoxide poisoning, snowplay, and winter driving. Several visitor centers stay open daily. Naturalist programs may be given on weekends and holidays. Both at Grant Grove and in the Giant Forest/Wuksachi area there are food service, cross-country ski and snowshoe rentals, winter camping, and snowplay areas. Grant Grove, Wuksachi, and nearby communities offer lodging.

## **Profile of the Sierra**

Phenomenal changes in topographic relief that characterize these parks are illustrated in this geological cross section through the Sierra Nevada from the North Fork of the Kaweah River, straight east through the Giant Forest to Mount Whitney, the parks' highest point.

From west to east in this cross section the distance from the North Fork Kaweah River to Mount Whitney is about 34 miles. Labels on the illustration identify the **parks' giant sequoia groves**.

### **Foothills Chaparral**

Dry, hot summers in the Sierra's western foothills give rise to chaparral, a drought-resistant shrub community adapted to withstand periodic fire.

Winter rains bring wildflower bursts in spring before grasslands and chaparral go brown for summer and fall.

### **The Giant Sequoia Belt**

The world's 75 giant sequoia groves grow on moist, unglaciated ridges on the Sierra's west slope, between 5,000 and 7,000 feet of elevation. Only eight groves lie north of Kings River—scattered over nearly 200 miles. The rest occur south of the river at intervals of 4.5 miles or less in a 60-mile-long belt. This Big Tree's range had shrunk to this area by about 2.5 million years ago when climates became drier. Some 60 million years ago its ancestral species ranged more widely. Visually dominant in their groves, sequoias are part of the mixed-conifer forest that includes white fir, sugar pine, yellow pine, and incense-cedar. The largest remaining sequoia groves are at Redwood Mountain in Kings Canyon National Park and at Giant Forest in Sequoia National Park. Redwood Mountain grove covers 3,100 acres and has 15,800 sequoia trees over one foot in diameter at their bases.

The Giant Forest covers 1,800 acres, with 8,400 such trees. Some 36,500 acres of sequoia groves remain in the Sierra. Most are under federal or state protection.

### **Elevation and Precipitation**

The Sierra Nevada forces moist, eastbound air upwards. As it rises the air is cooled and forced to release its moisture as precipitation. Drought-resistant chaparral covers lower west slope elevations. Gargantuan sequoia/ mixed-conifer forests cover middle elevations. Air masses crest the mountains mostly depleted of moisture. East of the Sierra Nevada, in its rainshadow, lies the semi-arid Great Basin. On the Sierra's west slope precipitation generally increases until it reaches a maximum between 5,000 and 8,000 feet of elevation. This zone of maximum precipitation includes the sequoia belt and its luxuriant forest development. Above these elevations precipitation tends to decrease.

**Mount Whitney**

Mount Whitney crowns the Sierra Nevada—the highest point in the contiguous United States. Named for California state geologist Josiah Dwight Whitney in 1864, it is visible from the west only from remote backcountry. Visitors to the Owens Valley east of the park see it from U.S. 395 near Lone Pine.

**Moro Rock**

Moro Rock is a dome-shaped granite monolith. Common in the Sierra Nevada, these domes form by exfoliation—the spalling or casting off in scales, plates, or sheets —of rock layers on otherwise unjointed granite. Outward expansion of the granite causes the exfoliation. Expansion results from load relief: when the overburden that once capped the granite has eroded away, the source of compression is removed, and the granite slowly expands. Fractures that form during exfoliation tend to cut corners. This ultimately results in rounded, dome-like forms. Moro Rock parking area is 1.5 miles from Giant Forest Museum. A 0.25-mile trail

## **Sequoia and Kings Canyon**

Natural areas pose hazards. You are responsible for your safety. Do not use these maps for hiking. Buy trail maps at the park visitor centers.

- No road crosses the Sierra Nevada within either Sequoia or Kings Canyon National Parks.
- No road access from U.S. Highway 395 on the parks' east side.
- Park roads are steep, narrow, and winding. See red labels on map below regarding vehicle length advisories.
- Park roads subject to closure in winter.
- Shift to first or second gear in automatic and manual vehicles on steep downhill roads.
- Giant Forest Summer Shuttle schedule/routes —see park newspaper.

### **To Protect Forever**

Sequoia and Kings Canyon National Parks share the mission to protect the Sierran ecosystem forever—home of foothills chaparral, the gigantic trees, and magnificent mountain landscapes.

These parks' purpose is also to help people, now and in the future, to experience and to understand the meaning and significance of these features and to champion the values of national parks and designated wilderness.

Sequoia and Kings Canyon National Parks are two of over 390 parks in the National Park System. The National Park Service, created in 1916, cares for these special places. To learn more about parks and National Park Service programs in America's communities please visit [www.nps.gov](http://www.nps.gov).

**(NOTE:** This concludes the text portion of this publication.  
The following lists graphics and credits.)

(GRAPHICS - SIDE 1)

**Mineral King Valley.**

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**Loggers on fallen monarch.**

AMERICAN MUSEUM OF NATURAL HISTORY

**John Muir.**

THE BANCROFT LIBRARY

**U.S. Cavalry protected the park in its early years.**

NPS

**Sequoia and Redwood Compared**

The giant sequoia has a massive trunk, huge stout branches, and cinnamon-colored bark. Also called "Sierra redwood" and "Big Tree," its scientific name is *Sequoiadendron giganteum*. The taller and more slender coast redwood, *Sequoia sempervirens*, is more conifer-like in profile.

Sequoias grow naturally only on the west slope of California's Sierra Nevada range. Redwoods grow naturally only in a narrow strip along the Pacific Coast.

**Redwood Facts**

Height: to 367.8 feet  
Age: to 2,000 years  
Weight: to 1.6 million lbs.  
Bark: to 12 inches thick  
Branches: to 5 feet diameter  
Bases: to 22 feet diameter  
Reproduce: by seed or sprout  
Seed size: like tomato seeds  
Cone size: like a large olive

**Sequoia Facts**

Height: to 311 feet  
Age: to 3,200 years  
Weight: to 2.7 million lbs.  
Bark: to 31 inches thick  
Branches: to 8 feet diameter  
Bases: to 40 feet diameter  
Reproduce: by seed only  
Seed size: like oat flakes  
Cone size: like chickens' eggs

**Cone ready to disperse seeds**

**From seed to seedling**

**Mature seed**

**Germinating**

**Sheds seed coat**

**At 2 weeks**

**Upper Dusy Basin, Kings Canyon National Park.**

©PAT O'HARA

**Kearsarge Lake.**

©DAVID MUENCH

**Crescent Meadow.**

©DAVID MUENCH

**The General Sherman Tree, world's largest living tree, is in Giant Forest, Sequoia National Park. The General Grant, the Nation's Christmas Tree, is in Grant Grove, Kings Canyon National Park.**

**The world's first, second, third, and sixth tallest trees grow within a mile of each other on Redwood Creek along the Northern California coast in Redwood National Park.**

**Mule deer.**

©BENJAMIN R. MILLER

**Black bear.**

NPS/GEORGE FOUNDS

### **Profile of the Sierra**

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**Moro Rock**

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ILLUSTRATIONS NPS/JOHN DAWSON

(GRAPHICS - SIDE 2)

**Area Map**  
NPS

**Driving Map**  
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**Map of the Parks**  
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## **Sequoia and Kings Canyon National Parks**

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