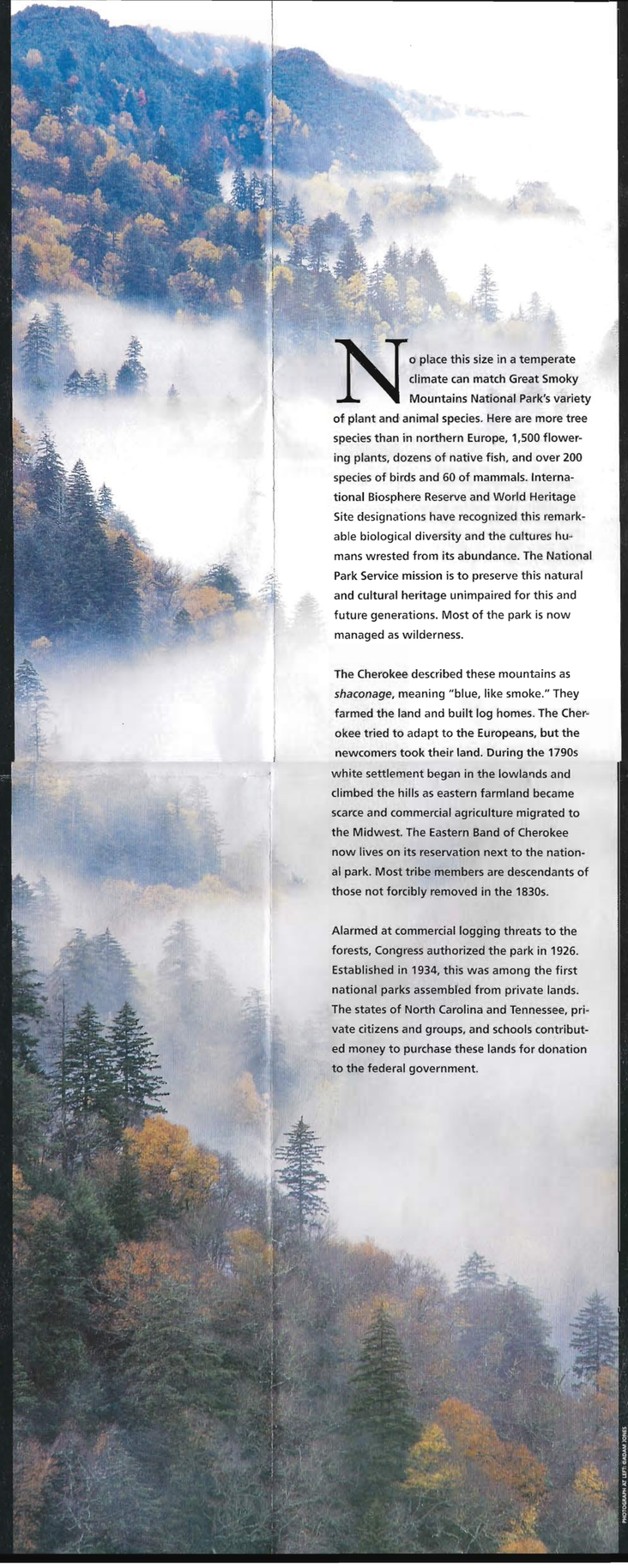
National Park Service
U.S. Department of the Interior

Great Smoky Mountains National Park
Tennessee and North Carolina

Great Smoky Mountains



PHOTOGRAPH AT LEFT: GRAHAM JONES

No place this size in a temperate climate can match Great Smoky Mountains National Park's variety of plant and animal species. Here are more tree species than in northern Europe, 1,500 flowering plants, dozens of native fish, and over 200 species of birds and 60 of mammals. International Biosphere Reserve and World Heritage Site designations have recognized this remarkable biological diversity and the cultures humans wrested from its abundance. The National Park Service mission is to preserve this natural and cultural heritage unimpaired for this and future generations. Most of the park is now managed as wilderness.

The Cherokee described these mountains as *shaconage*, meaning "blue, like smoke." They farmed the land and built log homes. The Cherokee tried to adapt to the Europeans, but the newcomers took their land. During the 1790s white settlement began in the lowlands and climbed the hills as eastern farmland became scarce and commercial agriculture migrated to the Midwest. The Eastern Band of Cherokee now lives on its reservation next to the national park. Most tribe members are descendants of those not forcibly removed in the 1830s.

Alarmed at commercial logging threats to the forests, Congress authorized the park in 1926. Established in 1934, this was among the first national parks assembled from private lands. The states of North Carolina and Tennessee, private citizens and groups, and schools contributed money to purchase these lands for donation to the federal government.

Smokies Forest Types

Spruce-Fir Forest

Growing on the highest park peaks, this evergreen forest is predominantly Fraser fir and red spruce. You can see it along the Spruce-Fir Nature Trail off the road to Clingmans Dome. Some high peaks bear treeless balds. Grassy balds may need human disturbances to stay grassy, so the park maintains the historic look of two. Heath balds of rhododendron, mountain laurel, azalea, and other evergreen heath shrubs can maintain themselves. Air pollution reduces visibility and causes damage to the trees from ground-level ozone.

Precipitation: 85 inches yearly
Elevation: 4,500 up to 6,600 feet

Glaciation's Diverse Legacy

Continental glaciers did not get this far south, but cold ice age climates pushed northern plants and animals far south of their former ranges. When the climate warmed, these boreal species persisted in the cooler mountains on the spine of the Smokies. This ice age legacy adds remarkable biological diversity to the park.

Extent of Glaciation

Great Smoky Mountains

Fraser fir
Red spruce
Chestnut-sided warbler
Mountain ash
Heath bald
Yellow birch
Raven
Rhododendron
Flame azalea
Dark-eyed junco
Oat grass
Nursery log
Club moss
Rugel's ragwort
Veery
Red squirrel
Jordan's salamander
Moss spider
Bluebead lily
Wood sorrel

Balsam Woolly Adelgid

An exotic insect from Europe, the balsam woolly adelgid came to North America on nursery stock. In 45 years it has killed most mature Fraser firs in the park—once the home to 75 percent of all Fraser firs in the world. Organisms adapted to this tree and forest type have also declined.

Balsam woolly adelgid

JOHN DAWSON

Northern Hardwood Forest

Broadleaved trees well adapted for high elevations make up this forest type. Predominantly beech and yellow birch, it includes mountain and striped maples, white basswood, and yellow buckeye. Northern hardwood forest interrupts spruce-fir forests at intervals along the road to Clingmans Dome—growing at higher elevations than any other deciduous forests in the East. Deer, bears, grouse, turkeys, and squirrels eat beechnuts for vital protein but now must compete with non-native European wild hogs for this food.

Elevation: above 4,500 feet

Beech Gaps: Islands of Vegetation

NPS

Beech gaps are pure stands of American beech trees that grow in low spots on the south-facing slopes of high ridges. Set into a spruce-fir forest, these distinct gaps look like islands. The gaps are damaged by beech bark disease and the rooting of wild hogs.

Black-capped chickadee
Ruffed grouse
Bee-balm
Coneflower
Blue-headed vireo
Turk's cap lily
Red fox
Painted trillium
Yellow birch leaves
Hog rut
Pale jewelweed
Sugar maple leaves
Wild hog

Wild Hogs

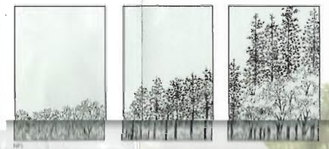
Brought to a private North Carolina game preserve in 1912, European wild hogs escaped in 1920. By the 1940s they had spread into the park. Where they have rooted the soil looks tilled. They damage native plants, historic landscapes, and cemeteries and compete with native animals for oak and hickory nuts. Wild hogs also eat other animals, including a species of salamander found only in the Smokies.

Cove Hardwood Forest

A cove is a sheltered valley with deep, rich soils. If sacred groves exist they are these old-growth cove hardwood forests loggers missed. This most diverse park forest type includes yellow birch, beech, buckeye, basswood, Carolina silverbell, yellow-poplar, sugar maple, magnolia, hickory, and eastern hemlock. Record-size trees and contenders abound. See this forest type, one of the world's most diverse plant communities, along the Cove Hardwood Nature Trail off Newfound Gap Road at Chimneys Picnic Area.

Elevation: In coves and on sheltered slopes up to 4,500 feet

Successional Growth and Forest Recovery



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Plant species tend to replace each other in a roughly predictable sequence after natural or cultural disturbance. Fields once farmed here recover to forests via *(left to right)* shrub, sapling, and forest stages that grow increasingly rich over long periods of time.

Yellow-poplar
Ovenbird
Dutchman's pipe
Black bear
Pipevine swallowtail
Dutchman's breeches
White-tailed deer
Jack-in-the-pulpit
Carolina silverbell
Ginseng root
Basswood
Eastern box turtle
Fringed Phacelia
White trillium

Poaching

While animal poaching has declined in the past few years, the illegal gathering of plants and other natural materials is a recurring problem. Ginseng roots are dug and sold for their supposed vital nature. Mosses, lichens, galax, and even rocks are taken illegally for ornamental use. These actions carry criminal penalties.

Hemlock Forest

Evergreen hemlock trees dominate stream sides and the shaded, moist slopes at lower elevations. They also may grow in drier settings at somewhat higher elevations. These trees were cut in pre-park days for their tannin-rich bark used in tanning leather. Hemlocks in the park have been infested by a non-native insect, the hemlock woolly adelgid.

Elevation: along streams up to 3,000 feet; on dry, exposed slopes and ridges up to about 4,000 feet

Water Dependence

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Mountains push air up until cold temperatures force it to release its moisture. Some 2,000 miles of park streams include beautiful waterfalls. Native brook trout largely have been displaced by stocked rainbow and brown trout. Some native brook trout waters are being restored, but higher-elevation habitat is being lost to stream acidification.

Holly
Bobcat
Brook trout
Black-throated green warbler
Red-spotted purple
Dog-hobble
Barred owl
Lady fern
Fraser magnolia
Shelf fungus
Pleasing fungus beetle
Hemlock woolly adelgid
Partridgeberry
Red oak leaf
Blackbelly salamander
Wood fern
Galax

Hemlock Woolly Adelgid

Native to China and Japan, the hemlock woolly adelgid has infested hemlocks throughout the park. By killing hemlocks, this alien insect disrupts the habitat of songbirds, squirrels, and trout. The park is actively treating trees along roadsides, popular trails, and developed areas like campgrounds. The release of a natural predator beetle that feeds only on the adelgid will hopefully help save a portion of the forest.

Pine-and-Oak Forest

Where dry slopes are heavily exposed to direct sunlight, oak or pine-and-oak forests predominate. Both forest types include rhododendron and mountain laurel thickets and yellow-poplar, hickory, and flowering dogwood trees. Dogwoods are springtime attractions of the forest understory, but they are dying from the non-native dogwood anthracnose fungus. The park has 11 species of oak trees and five species of pines.

Precipitation: 55 inches yearly
Elevation: On dry, exposed slopes and ridges up to about 4,500 feet

Fire Dependence

NPS

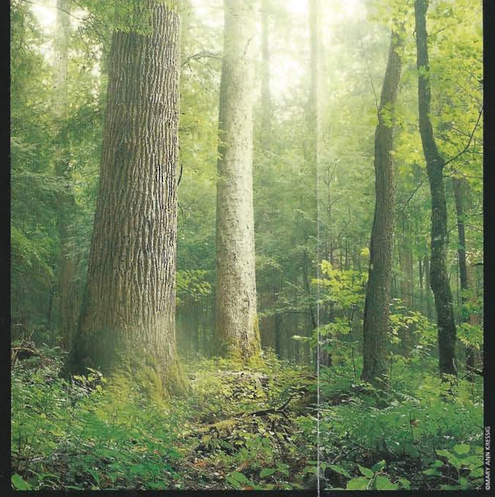
The Cherokee used fire to create farmland and to improve wildlife browse for hunting. White settlers followed their lead. But vast fires after logging led to decades of fire suppression. We now know some plant communities need fire. To reproduce, pine-and-oak forests require the light and bare soil fire provides.

Mixed oaks
Pileated woodpecker
Pink lady's slipper
Mixed pines
Hooded warbler
Sassafras
Christmas fern
Turkey
Pine pinks
New York fern
Columbine
Katydid
Chipmunk
Pine beetle
Chestnut oak leaves
Sourwood leaves

Southern Pine Beetle

Orange needles on pine trees may indicate infestation by native southern pine beetles. If fire is suppressed, the pine beetles increase, and impacts of their predation multiply. Without periodic fire, hardwoods replace the pine forest, which means more beetles prey on fewer pines. This double squeeze on pine forests affects species adapted to live in them, like the threatened red-cockaded woodpecker that nests in live pines.

Discovering Diversity in the Smokies

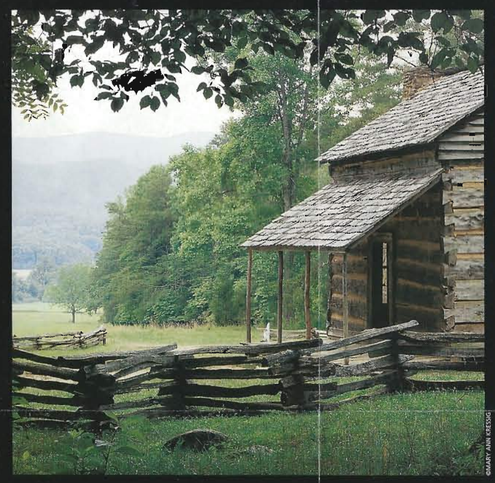


Late 18th-century European naturalists found a botanically rich world new to them in the mountainous homelands of the Cherokee Indians. New organisms continue to be discovered.

Cherokees adapted very quickly to great changes that newcomers brought. Even before the Revolutionary War they were deeply involved in the fur trade with Europe, via Charleston, South Carolina. Long after the Trail of Tears, ethnologist James Mooney came to study the Eastern Cherokee who had managed to stay. He photographed Walini *(right)* on the Qualla Reservation in 1888.

Walini, in 1888
SMITHSONIAN INSTITUTION

Fire pink
NPS



When the park was created in the 1920s and 1930s largely from private lands, many buildings of varied construction stood here. In the 1930s the National Park Service decided to save mostly the log buildings. Only a few frame dwellings, mills, and churches remain.

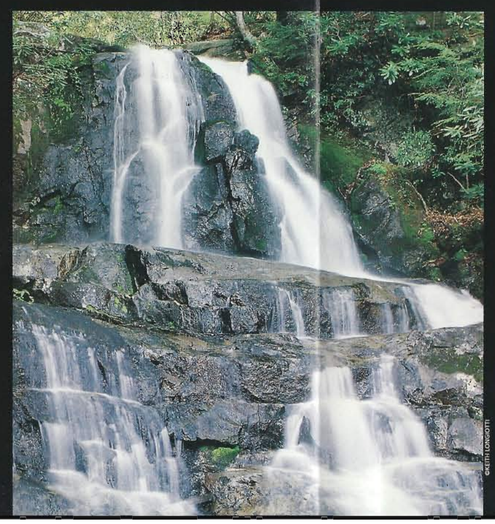
Travel and local-color writers stereotyped mountain people as backward and geographically isolated. In fact, pre-park residents took part in the immense changes of the larger society of that time, and they actively engaged in the cash-based market economy.

Mollie McCarter Ogle and Mattie, circa 1928
GLAURA THORNBOROUGH

Grass of Parnassus
NPS

Many people come to Great Smoky Mountains National Park to discover how their forebears lived. Punctuating its phenomenal biodiversity is the park's collection of vernacular and rustic architecture. Here is one of the nation's largest collections of log structures along with many buildings constructed during the Depression-era Civilian Conservation Corps work program. You can experience Oconaluftee Cherokee Indian culture and traditions at programs and museums on their reservation, Qualla Boundary, south of the park. Less visible are vestiges of early commercial routes and mining operations. These linked many people to markets abroad and lent diversity to the farm life of most Indians and newcomers. Enjoy the park and discover the heritage of natural and cultural diversity it preserves for all time.

Appalachian basket
NPS/OMGRAY



Endlessly attractive, even magical, waterfalls inspire reverie amidst the park's greatly diverse tapestry of life. Whether mid-mountain habitat for the native brook trout or motive power to drive lowland mill wheels, falling water reveals new meanings in our Southern Appalachian heritage.

You are connected to these resources. Waterfalls symbolize the flow of natural processes we take part in daily. Mill wheels turned by wild mountain streams . . . nature and culture proclaim our unity here.

John Walker, 1918
©JIM SHELTON

Crested dwarf iris
NPS

Essentials for Seeing the Smokies

Season-by-season tips for seeing Great Smoky Mountains National Park are found in the *Smokies Guide*, the official park newspaper. Read its important information on safety and regulations to protect you and the park's natural and cultural features. Free copies are found at visitor centers and other park locations.

Please ask at a visitor center for accessibility information.

Visitor centers—at Sugarlands, Cades Cove, and Oconaluftee—are great information sources. See their exhibits, talk with a ranger or volunteer to find out how to use your time here. Browse their bookshops for guidebooks, maps, and videos.

Check the park's website for current events and programs, park information, and links to sites about nature and culture in the park. **www.nps.gov/grsm**.

From your car you can see much of what the Smokies offer, including wildflowers, flowering trees, colorful fall foliage, mountain vistas, and historic buildings. Newfound Gap Road (U.S. 441), the main road across the mountains, is a famous scenic drive.

Other park roads offer glimpses of the park's natural and cultural heritage and also link you to self-guiding trails and short footpaths to other park attractions for more intimate insights into this great public treasure.

Walking a park trail can be the best way to sense how directly you are related to the world of nature. Walking even short distances can put you in a totally different world. The lack of human-generated noise opens up the world of natural sounds.

Simply being inside the magnificent forests can be a multi-sensory experience rich with sights, sounds, smells, and that special skin warmth felt as light rays penetrate the deep shade cast by a forest canopy. Dwarfed by the trees, your sense of scale may even be altered.

The Appalachian Trail threads nearly the length of the national park (some 70 miles) along the Smokies' crest and the Tennessee-North Carolina border. You can take this national scenic trail north to Maine's Mount Katahdin or south to Georgia's Springer Mountain. Volunteers coordinated by the nonprofit Appalachian Trail Conservancy maintain it. On the two-mile stretch heading south from Newfound Gap, accessible near the Newfound Gap parking lot, you can see wildflowers in spring or colorful foliage in fall. Then you can say: "I walked a part of the 2,174-mile-long Appalachian Trail."

Bicycling is especially popular on the Cades Cove Loop Road. Ask about special bicyclist and pedestrian-only hours on the loop road in summer. At Cades Cove you cycle on the 11-mile road through open fields encircled by mountains. You can stop at the historic buildings preserved there. Bicycles are allowed on park roads, but many are winding, steep, or narrow and shared by many motorists new to mountain driving. Bicycles are prohibited on nearly all park trails; ask at visitor centers about exceptions.

Horseback riding also offers a good pace for seeing the park. Auto-access horse camps provide access to backcountry trails, but space is limited. Horses can be hired by the hour at several park locations for guided trail rides. Horse camps and rentals are not available for parts of the winter. Check schedules at a visitor center, in the *Smokies Guide*, or on the park website.

Backcountry hiking can immerse you in these Southern Appalachian mountain wildlands. *Any overnight backcountry use requires a backcountry use permit.* You also need proper equipment, adequate preparation, specific use information, and, for some areas, reservations. Please learn and use the techniques of the Leave No Trace outdoor ethic. For the information you need, check the park website or the *Smokies Guide* or call the Backcountry Information Office at 865-436-1297.

This is bear country. To protect you and the American black bears here, *federal law requires proper food storage.* Store all food in the trunk of your vehicle and place all garbage entirely within bearproof trash cans or dumpsters. Clean up food scraps in and near camp and on grills and table tops, so bears do not become habituated to human food and garbage. Such bears eventually lose their natural fear of humans and become aggressive problem bears that are killed by automobiles, are easy targets for poachers, or must be destroyed. Please don't be bear careless!

Feeding wildlife or picking plants is subject to a $5,000 fine and six months imprisonment.

Have fun learning more about the park's nature and history in programs offered by the Great Smoky Mountains Institute at Tremont and by the Smoky Mountain Field School. Programs vary from one day to a week or more and are offered for ages nine to 17 and for adults, including elderhostel participants.

Check the *Smokies Guide* to find out how you can participate in learning experiences like overnights, hiking weeks, summer camp, canoeing, wildlife seminars, elderhostels, teacher weekends, and landscape photography. These and other programs cover many topics—backpacking, geology, spring wildflowers, park history, and birds and other wildlife of the park area.

Great ways to support the park include joining the nonprofit Great Smoky Mountains Association and the Friends of Great Smoky Mountains National Park. Both groups exist to help the park and to help you care for, learn about, and support the park, including opportunities to volunteer. Find details in the *Smokies Guide* or ask at a visitor center.

Pets are permitted in the park on a leash only; they are prohibited on trails or cross-country hikes.

Air pollution from outside the park plagues its views, visitors, forests, wildlife, and waters. Since 1948 haze from air pollution has reduced average visibility 40 percent in winter and 80 percent in summer. Ground-level ozone, a respiratory irritant for humans, also damages plants, especially at higher elevations. Acidic precipitation and nitrogen overloads block plant nutrients and release toxic aluminum that can harm plants and streamlife.

International Biosphere Reserve

World Heritage Site

For campground reservations (other than backcountry) call: 1-877-444-6777.

For emergencies call: *Park headquarters,* 865-436-9171; *Cherokee (N.C.) police,* 828-497-4131; or *Gatlinburg (Tenn.) police,* 865-436-5181.

More information
Great Smoky Mountains National Park
107 Park Headquarters Road
Gatlinburg, TN 37738
865-436-1200
www.nps.gov/grsm

Great Smoky Mountains National Park is one of over 390 parks in the National Park System. To learn more about parks and National Park Service programs in America's communities visit www.nps.gov.

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Getting to the Park