SMOKIES GUIDE

The official newspaper of Great Smoky Mountains National Park • Winter 2018-19

In this issue

Words with a Ranger

You can't beat the Smokies when it comes to backcountry—in terms of the topography, the views, the seasons, the wilderness, the diversity of recreational experiences, and the challenges! I am responsible for managing the way people use this special place. My purview is the entire landscape of the park, and my role is as diverse as the landscape. I am the backcountry management specialist for the largest and most visited managed wilderness in the east.

Words with a Ranger continued on page 5

Changing weather can be unpredictable in Great Smoky Mountains National Park. Planning ahead is key. *Bill Lea image*

Safe Winter Hiking Means Preparing for Constantly Changing Weather

Safety should always be on one's mind when embarking on a winter hike

Our park offers a wide range of outdoor activities in all kinds of weather. In winter especially, changing conditions can be hard to anticipate.

"Even an experienced hiker, park employee or iPhone can't predict what Mother Nature has in store," says backcountry management specialist Christine Hoyer. "Changing weather can be consequential in the winter, so it is important to be prepared for the unexpected."

The park's short hikes offer great views and a winter wonderland feel, while limiting longer-term exposure to the elements. The backcountry can also provide a quiet, peaceful experience, if you are prepared for it.

"Visitors are always surprised by how different the weather can be from down in the lower elevations to up high," Hoyer says. "It could be a warm winter day down in Gatlinburg and be snowing at Clingmans Dome at the same time."

Once ice forms on some shaded sections of popular trails in the higher elevations, it remains throughout the winter. Hiking poles and extra traction devices for your shoes are a necessity.

Any number of factors can keep you out on a hike longer than you expected—the slower pace due to cold or snow, a storm, trail obstacles and, in the worst case, an injury. "What you carry and the conditions you prepare for have nothing to do with how far you plan to walk," Hoyer reminds us. "I pack the same essentials no matter what."

Give someone your itinerary. Track the weather forecast and watch park information in case any roads or trails close. Call the backcountry office 865.436.1297, 8 a.m.-5 p.m., seven days a week before you hit the trail. Let us help you plan a safe and enjoyable hike.

THE WINTER HIKING ESSENTIALS LIST

- map and compass
- permit if camping overnight
- food—extra in case
- water and purification device
- first aid kit—know the basics
- sun protection—even in winter
- extra layers (base layer, jacket, socks)—for changing conditions
- rain gear and backpack cover
- hiking poles, microspikes
- shelter—tent, tarp, bivvy
- flashlight, headlamp, batteries
- lighter or matches
- knife or multi-tool kit

Camping in the national park

The National Park Service maintains developed campgrounds at nine locations in the park. Only Cades Cove and Smokemont are open in winter. There are no showers or hookups other than circuits for special medical uses at Cades Cove, Elkmont and Smokemont.

Campsites at Abrams Creek, Balsam Mountain, Big Creek, Cades Cove, Cataloochee, Elkmont and Smokemont may be reserved. For reservations call 877.444.6777 or contact recreation.gov. Sites may be reserved up to six months in advance. Reservations are *required* at Abrams Creek, Balsam Mountain, Big Creek and Cataloochee campgrounds.

Site occupancy is limited to six people and two vehicles (a trailer = one vehicle). The maximum stay is 14 days.

Special camping sites for large groups are available seasonally at Big Creek, Cades Cove, Cataloochee, Cosby, Deep Creek, Elkmont and Smokemont. Group sites must be reserved. Call 877.444.6777 or contact recreation.gov. Group sites may be reserved up to a year in advance.

The list below shows number of campground sites, elevations, nightly fees and maximum RV lengths. For more information, visit nps.gov/grsm.

- **Abrams Creek** 16 sites, elev. 1,125', opens April 27, $17.50, 12' trailers
- **Balsam Mountain** 42 sites, elev. 5,310', opens May 18, $17.50, 30' RVs
- **Big Creek** 12 sites, elev. 1,700', opens March 30, $17.50, tents only
- **Cades Cove** 159 sites, elev. 1,807', open year-round, $21-$25, 35'-40' RVs
- **Cataloochee** 27 sites, elev. 2,610', opens March 23, $25, 31' RVs
- **Cosby** 157 sites, elev. 2,459', opens March 23, $17.50, 25' RVs
- **Deep Creek** 92 sites, elev. 1,800', opens March 30, $21, 26' RVs
- **Elkmont** 220 sites, elev. 2,150', opens March 9, $21-$27, 32'-35' RVs
- **Smokemont** 142 sites, elev. 2,198', open year-round, $21-$25, 35'-40' RVs.
- **Look Rock** *closed in for repairs*

John Oliver cabin blanketed in snow. Cades Cove campground and picnic area is one of the few open in the winter. *Image by Bill Lea*

Firewood

To prevent the spread of destructive insect pests, the NPS has banned outside firewood from entering the park unless it is USDA- or state-certified heat-treated wood. Visitors are allowed to collect dead and down wood for campfires while camping in the park. Certified wood may be purchased in and around the park.

Bicycling

Most park roads are too narrow and heavily traveled by automobiles for safe or enjoyable bicycling. However, Cades Cove Loop Road is an exception. This 11-mile, one-way, paved road provides bicyclists with excellent opportunities for wildlife viewing and touring historic homesites.

From May 9 to Sept. 26, on Wednesday and Saturday mornings from sunrise until 10 a.m., only bicycles and pedestrians are allowed on Cades Cove Loop Road. Bicycles may be rented at the Cades Cove Campground store.

Helmets are required by law for persons age 16 and under. However, helmets are strongly recommended for all bicyclists.

Bicycles are permitted on park roads but prohibited on trails except Gatlinburg, Oconaluftee River and lower Deep Creek/Indian Creek.

Accommodations

- **LeConte Lodge** (accessible by trail only) provides the only lodging in the park. 865.429.5704 or lecontelodge.com

For information on lodging outside the park:

- **Bryson City** 800.867.9246 or greatsmokies.com
- **Cherokee** 828.788.0034 or cherokeesmokies.com
- **Fontana** 800.849.2258 or fontanavillage.com
- **Gatlinburg** 800.588.1817 or gatlinburg.com
- **Maggie Valley** 800.624.4431 or maggievalley.org
- **Pigeon Forge** 800.251.9100 or mypigeonforge.com
- **Sevierville** 888.766.5948 or visitsevierville.com
- **Townsend** 800.525.6834 or smokymountains.org

Pets in the park

Pets are allowed in front-country campgrounds and beside roads as long as they are restrained at all times. Pets are not allowed on park trails, except for the Gatlinburg and Oconaluftee River trails. Dogs on these trails must be leashed.

Special events

December 8 Festival of Christmas Past: Sugarlands Visitor Center
December 15 Holiday Homecoming: Oconaluftee Visitor Center

For rent

The Appalachian Clubhouse and Spence Cabin at Elkmont can be rented for daytime events. Contact recreation.gov.

Visitor centers

Winter hours of operation are, Cades Cove: 9-4:30 in Dec. and Jan; 9-5:30 in Feb.; 9-6:30 in March. Oconaluftee: 8-4:30 in Dec.-Feb.; 8-5 in March. Sugarlands: 8-4:30 in Dec.-Feb.; 8-5 in March.

Picnic areas

Picnic areas have a table and raised grill for cooking (charcoal fires only). Please see the map on page 16 for locations. Picnic pavilions may be reserved for $12.50-$80 at recreation.gov.

SMOKIES GUIDE

Smokies Guide is produced five times per year by Great Smoky Mountains Association and Great Smoky Mountains National Park.

Publication dates are roughly as follows:
Spring: March 15
Summer: June 1
Late Summer: mid-August
Fall: Sept. 15
Winter: Dec. 1

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MOVING ROCKS HARMS AQUATIC LIFE.

Other services

There are no gas stations, showers, or restaurants in the national park.

Park weather

• **Spring** - March has the most changeable weather; snow can fall on any day, especially at the higher elevations. Backpackers are often caught off guard when a sunny day in the 70s °F is followed by a wet, bitterly cold one. By mid- to late April, the weather is milder.

• **Summer -** By mid-June, heat, haze and humidity are the norm. Most precipitation occurs as afternoon thundershowers.

• **Autumn -** In mid-September, a pattern of warm, sunny days and crisp, clear nights often begins. However, cool, rainy days also occur. Snow may fall at the higher elevations in November.

• **Winter -** Days during this fickle season can be sunny and 65°F or snowy with highs in the 20s. At the low elevations, snows of 1" or more occur 3-5 times per year. At Newfound Gap, 69" fall on average. Lows of -20°F are possible at the higher elevations.

Gatlinburg, TN elev. 1,462'				Mt. Le Conte elev. 6,593'		
	Avg. High	Low	Precip.	Avg. High	Low	Precip.
Jan.	49°	27°	4.0"	36°	18°	6.7"
Feb.	53°	28°	4.1"	37°	19°	5.6"
March	62°	35°	5.5"	44°	25°	7.0"
April	71°	42°	4.5"	52°	31°	6.7"
May	77°	50°	5.7"	58°	39°	8.0"
June	82°	58°	5.8"	64°	47°	8.7"
July	85°	62°	6.3"	67°	50°	9.0"
Aug.	84°	61°	5.3"	67°	49°	7.6"
Sept.	79°	55°	4.7"	62°	44°	7.2"
Oct.	70°	43°	2.9"	55°	35°	4.7"
Nov.	60°	34°	3.4"	46°	27°	6.8"
Dec.	51°	28°	4.6"	38°	20°	6.4"

These temperature and precipitation averages are based on data for the last 20 years. Temperatures are in degrees Fahrenheit. An average of over 84" (7 feet) of precipitation falls on the higher elevations of the Smokies. On Mt. Le Conte, an average of 82.8" of snow falls per year.

Fishing

Fishing is permitted year-round in the park, and a Tennessee or North Carolina fishing license is required. Either state license is valid throughout the park and no trout stamp is required. Fishing with bait is prohibited in the park. A special permit is required for the Cherokee Reservation and Gatlinburg. Licenses are available in nearby towns.

A free fishing map with a complete list of all park fishing regulations is available at visitor centers.

Camping in the backcountry

Winter camping can be an exciting adventure for persons properly equipped and informed. To facilitate this activity, the National Park Service maintains more than 800 miles of trails and more than 100 backcountry campsites and shelters throughout the park. One of the greatest challenges for backcountry campers is deciding where to go. Here are some tools to help.

1. Go online to view the park's official trail map (nps.gov/grsm/planyourvisit/maps.htm), which shows all park trails, campsites, and shelters. Park rules and regulations are also listed here. If you wish, you can purchase the printed version of the trail map for $1 by stopping at any park visitor center or calling 865.436.7318 x226 or shopping online at SmokiesInformation.org.

2. Call or stop by the park's backcountry office, which is open daily from 8 a.m. to 5 p.m, for trip planning help. The office is located in Sugarlands Visitor Center, two miles south of Gatlinburg on U.S. 441. 865 436.1297.

3. Make your reservation and obtain your permit through the backcountry office at Sugarlands Visitor Center (by phone or in person) or online at smokiespermits.nps.gov.

Reservations and permits are required for all overnight stays in the backcountry. The cost is $4 per person per night. Reservations may be made up to 30 days in advance.

Winter hikers should be especially aware of the danger of hypothermia—the lowering of body temperature. The combination of rain, cold and wind is especially dangerous. At the park's higher elevations, hypothermia can be a threat even during summer.

To prevent hypothermia, carry reliable rain gear at all times. Layer clothing that provides warmth when wet (not cotton). Be prepared for sudden weather changes, especially at the higher elevations. Stay dry.

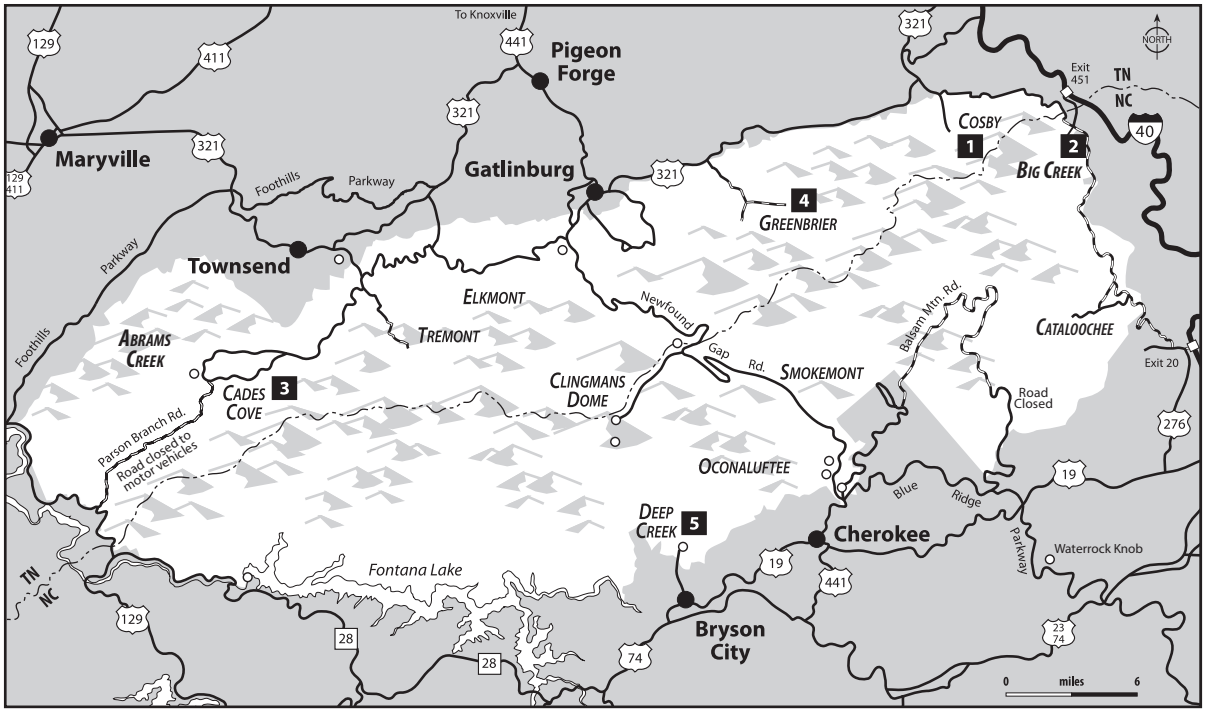
Driving distances and estimated times

Cherokee, NC to:
Gatlinburg: 34 miles (1 hour)
Cades Cove: 57 miles (2 hours)
Newfound Gap: 18 miles (½ hour)
Clingmans Dome: 25 miles (¾ hour)
Cataloochee: 39 miles (1½ hours)
Deep Creek: 14 miles (½ hour)

Gatlinburg, TN to:
Cherokee: 34 miles (1 hour)
Cades Cove: 27 miles (1 hour)
Newfound Gap: 16 miles (½ hour)
Clingmans Dome: 23 miles (¾ hour)
Cataloochee: 65 miles (2½ hours)
Greenbrier Cove: 6 miles (¼ hour)
Deep Creek: 48 miles (1½ hours)

Townsend, TN to:
Cades Cove: 9 miles (¼ hour)
Newfound Gap: 34 miles (1¼ hours)
Gatlinburg: 22 miles (¾ hour)
Cherokee: 52 miles (1½ hours)
Look Rock: 18 miles (½ hour)
Cataloochee: 87 miles (3 hours)

GREAT SIGHTS TO SEE



1. Cosby

Highlights: hiking

Cosby is a day hiker's and backpacker's delight. Hiking destinations include Hen Wallow Falls, Cosby Nature Trail, Sutton Ridge Overlook, Mt. Cammerer Fire Tower, and the Appalachian Trail. The most popular trail, Gabes Mountain to Hen Wallow Falls, is a moderate, 4.2-mile roundtrip hike. Continuing past the waterfall, the trail leads through ancient old-growth forest. Cosby Nature Trail is an easy, 1-mile loop that features an illustrated brochure keyed to numbered posts. Sutton Ridge Overlook, a scenic viewpoint, is accessed via Lower Mt. Cammerer Trail and involves a moderate, 2.9-mile roundtrip hike. Mt. Cammerer Fire Tower offers some of the best views in the park, but requires a strenuous 10.4-mile roundtrip hike.

Backpackers will find Campsites #34, #29 and the Cosby Knob Shelter (on the AT) as desirable destinations. All backcountry campsites require a permit and reservation.

Cosby Campground and Picnic Area are closed in winter.

Mileage from Gatlinburg—23
from Townsend—44
from Cherokee—57

2. Big Creek

Highlights: hiking, fishing

Big Creek is in an off-the-beaten-path corner of the park that is especially quiet during the winter. Hiking destinations include Mouse Creek Falls, Mt. Sterling Fire Tower, Mt. Cammerer Fire Tower, and the Appalachian Trail. The most popular trail, Big Creek to Mouse Creek Falls, is a moderate, 4-mile roundtrip hike. Following Chestnut Branch Trail to the AT and Mt. Cammerer Fire Tower makes for a beautiful and strenuous 12-mile roundtrip adventure. Following Baxter Creek Trail to Mt. Sterling Fire Tower (12.2 miles roundtrip) entails a 4,000-foot elevation gain and is one of the most challenging hikes in the Smokies.

Backpackers will find Campsite #37 and Davenport Gap Shelter (on the AT) desirable destinations. All backcountry campsites require a permit and reservation.

Big Creek offers good fishing for wild trout (license required). Big Creek Campground and Picnic Area are closed in winter.

Mileage from Gatlinburg—37
from Townsend—48
from Cherokee—60

3. Cades Cove

Highlights: historic buildings, wildlife viewing

Cades Cove is one of the most popular destinations in the Smokies because it offers an unusual blend of both natural and cultural resources.

Deer are often sighted in the fields, and their breeding season (or 'rut') continues through early winter. You might also see bear, coyote or Wild Turkey. Please use pullouts when viewing wildlife. Never approach or feed animals.

A wide array of historic buildings, some dating back to the mid-19th century, are preserved throughout the cove. These include a gristmill, a variety of barns, three churches, and a renowned collection of log homes.

An 11-mile one-way loop road takes you around the cove. A visitor center (open daily), restrooms and the Cable Mill walking tour are located halfway around.

Numerous trails start in the cove, including the 5-mile roundtrip trail to Abrams Falls and the 8.5-mile Rich Mountain loop hike.

Mileage from Townsend—9
from Gatlinburg—27
from Cherokee—58

4. Greenbrier

Highlights: mountain biking, walking trails

Greenbrier is a hiker's delight. Trails include Ramsey Cascade, Old Settlers, Grapeyard Ridge, Brushy Mountain and Porters Creek. Ramsey Cascade is a strenuous 8-mile roundtrip hike to the tallest waterfall in the park. Moderate Porters Creek Trail leads 1.8 miles (one-way) past a historic cemetery to Fern Branch Falls. A short side trip takes you to the historic hiker club cabin and barn. Brushy Mountain Trail can be used for a 9.1 mile (one-way) trek to the summit of Mt. Le Conte.

The roads in Greenbrier are mostly gravel and motorists must travel at a slow pace. This makes the area appealing to some mountain bikers, although bikes are permitted only on roads and not on any of the hiking trails.

Anglers have long frequented the West Prong.

Mileage from Gatlinburg—4
from Townsend—24
from Cherokee—41

5. Deep Creek

Highlights: walking trails, waterfalls, mountain biking

The Deep Creek area is an off-the-beaten-path destination in the Great Smoky Mountains, celebrated for its rushing streams and waterfalls. Hikers enjoy the area because of the waterfalls and because there are several loop hikes to choose from. Mountain bikers can take advantage of one of the few park trails where bicycles are permitted.

Deep Creek area loop hikes include Juney Whank Falls (0.6 mile), Three Waterfalls Loop (2.4 miles), and Deep Creek-Indian Creek Loop (4.4 miles). Longer loop hikes are also available.

Bicycles are allowed on Deep Creek and Indian Creek trails to the points where the old roadbeds end and the trail treads begin.

Deep Creek Picnic Area is open year-round. The picnic pavilion can be reserved at recreation.gov.

Mileage from Cherokee—14
from Gatlinburg—48
from Townsend—65

Words with a Ranger

continued from page 1

I was an outdoor kid, always happiest when out in nature somewhere, and I had the good fortune to travel to national parks during our family summer vacations. When I was in college, I started backpacking, and from that point on, I was always spending my free time either planning an adventure or exploring a trail or a national park somewhere.

I decided to take my passion for the out-of-doors and see if I could turn that into a career, and I am grateful every day that my journey brought me to the National Park Service. I am passionate about balancing the preservation of these resources with visitor enjoyment of this natural playground.

Prior to working for the NPS, I worked my way up the ranks from trail volunteer to trail crew leader for the Appalachian Trail Conservancy—ultimately leading trail projects on the southern third of the Appalachian Trail, which includes the Smokies.

Now, I am responsible for protecting the wilderness values of this park, advising park management about trip planning; educating visitors about leave-no-trace values; securing permits for overnight users; maintaining campsites and shelters; updating trail and campsite closures and advisories; implementing backcountry signage; and mitigating impacts along trails and at overnight sites.

I work with hundreds of volunteers who offer their sweat equity to the backcountry. I also act as the park liaison for the cooperative management of the three long trails that travel through our park—the AT, the Mountains to Sea Trail and the Benton MacKaye Trail.

This is a dream job for me. Priorities and projects are constantly changing—just like the conditions in the backcountry. I thrive in this role because it is directly connected to the natural resources and the visitors. All of us can make a difference through how we connect people to this place and how we educate and inspire them to both enjoy it and protect it.

PARK NEWS

Great Smoky Mountains National Park news briefs

Agreement Would Allow Cherokee to Harvest Sochan in Park

The Eastern Band of Cherokee Indians (EBCI) and the National Park Service are forging an agreement that could allow a limited number of tribal members to harvest sochan leaves within the boundaries of Great Smoky Mountains National Park.

The tender young leaves of the wildflower called green-headed coneflower *(Rudbeckia lacinata)* or sochan (Sᵊcha) have long been a favorite spring green for the Cherokee. Going into the mountains to collect sochan is considered a sacred practice by some Cherokee as well as a family tradition that often involves grandparents passing on their knowledge of wild plants to children and grandchildren.

"It's part of who we are as Cherokee," said Tommy Cabe, tribal forest resource specialist for the EBCI, "and part of us belonging to this landscape. Food is medicine in Cherokee culture, and sochan tastes good and is good for us."

Sochan leaves are especially high in Vitamin A, iron, calcium, potassium and other minerals. The tall, late-summer-blooming wildflower is common along shady streams and wet areas throughout the Smokies.

Federal law protects almost everything within the borders of national parks, including wildlife, plants, historic objects and even rocks. Exceptions include game fish (with catch limits), and berries and edible mushrooms (for personal consumption only). However, in 2016, the NPS modified its regulation to allow "gathering of plants or plant parts by federally-recognized Indian tribes for traditional purposes." The modified regulation allows national parks and tribes to enter into agreements allowing limited harvest of specific plants as long as the action does not adversely impact park resources. The Smokies is one of the first parks in the National Park System to work towards negotiating such an agreement.

In October 2018, the park service completed a final draft of the environmental assessment (EA) for the sochan gathering agreement.

"In the assessment's preferred alternative, the number of harvesters would initially be limited to 36 tribal members per year," said Tom Remaley, head of the park's inventory and monitoring program. "Park staff will monitor harvest and non-harvest areas to assess impacts on individual plants and populations."

Sochan leaves. *Image courtesy of University of Tennessee Herbarium*

The draft EA's preferred alternative also limits sochan gathering to a season from March 1 to May 31 with a weekly limit of one bushel of leaves per certified gatherer.

"The way the Cherokee harvest sochan leaves is sustainable and even increases seed production," said Cabe.

The Park Service is soliciting public comments on the draft EA until December 13, 2018. For a copy of the assessment and to make a comment, see parkplanning.nps.gov/grsm.

The Collections Have Arrived

The National Park Service Collections Preservation Center, located in Townsend, TN, is the new home of the Great Smoky Mountains National Park archives and cultural heritage collection.

Though the facility was in the planning stages for almost a decade, construction was completed in the spring of 2016, and collections from GSMNP were finally moved in during the fall of that year. This state-of-the-art repository is the result of a public-private partnership between the Great Smoky Mountains Heritage Center, the Friends of the Smokies, the Great Smoky Mountains Association, and the National Park Service.

Housed in a secure, climate-controlled building, the facility contains archival records and museum artifacts including more than 20,000 historic photographs, 3,500 hours of oral history recordings, genealogical documents and federal records, as well as tools, furniture, quilts, and other implements made and used by the historic residents of this region.

"This facility provides an unprecedented opportunity for researchers to study the cultural and material history of the Great Smoky Mountains," said Michael Aday, the park's librarian-archivist. "For the first time in the collections' history everything is under one roof and available within the park. A building like this allows us to care for these important collections in the manner that they deserve."

In addition to the collections from the Smokies, the facility will also eventually house the cultural collections for Andrew Johnson National Historic Site, Obed Wild and Scenic River, Cumberland Gap National Historic Park, and Big South Fork National River and Recreation Area.

Though open to anyone interested in research, the facility is accessed by appointment only. Please contact 865.448.2247 to schedule an appointment.

The Great Smoky Mountains Institute at Tremont Turns 50

As 2019 dawns, the unique residential education center known as Tremont marks five decades of hands-on learning. An early trailblazer in environmental education worldwide, the Great Smoky Mountains Institute at Tremont (GSMIT) offers more than 30 courses, camps and workshops annually, providing opportunities for students of all ages to study and immerse themselves in one of the most ecologically diverse classrooms on the planet—Great Smoky Mountains National Park.

Nestled about four miles from the Townsend, TN, entrance to the park on the Middle Prong of the Little River, the GSMIT campus enjoys ample views of Fodderstack Mountain and access to miles of surrounding trails and forest. Originally established in 1969 by educators at Maryville College in cooperation with the National Park Service, Tremont has continued to pursue its mission of 'connecting people and nature' through its one-of-a-kind residential approach to understanding the interconnected ecology of the mountains.

"I have noticed that students are more engaged and ask more questions in a natural setting. Their sense of wonder kicks in and they become more curious about the environment around them," said Michele Owen, a biology teacher at William Blount High School's 9th Grade Academy who has participated in Tremont programs with her students. "Outdoor education creates problem-solving skills, critical thinking and self reflection, and fosters an attitude of stewardship towards the preservation of the environment."

During typical stays of three-to-ten days, participants in GSMIT programs eat, sleep and learn in the park with some of the top environmental educators in the country. Younger learners from elementary school to high school can get involved through summer youth programs, family camps, or three-to-five-day programs arranged to integrate state learning standards. Opportunities for adults range from backpacking and photography workshops to wilderness first responder courses, plant and animal identification, and professional development and certification for teachers in experiential learning.

The eight-course Southern Appalachian Naturalist Certification Program (SANCP) provides budding naturalists of any background with the necessary skills and resources to incorporate learning into real-world experience outdoors. "I discovered Tremont while searching for ways that I could learn more about the Smokies in a classroom setting, as a hobbyist naturalist with no background in hard sciences," said Emma DuFort. "SANCP has been a great way to dip my toes into the world of ecology and jam pack a ton of hands-on field work and learning into a few fun and informative weekends."

Tremont students brave the cold to learn more about the outdoor world that surrounds them. *Image by Joye Ardyn Durham*

There's never been a better time to get involved with Tremont as it celebrates its 50th year of fostering immersive learning and meaningful connections in the park. Need-based financial aid is available through the Tremont Scholarship Fund. Learn more at gsmit.org.

Report Predicts Cleaner Streams Will Lag Behind Cleaner Air by 60 Years

According to the park's latest "Vital Signs" report, many of the Smokies' high-elevation streams will remain unacceptably acidic for at least 60 more years. In fact, the 41 miles of streams officially listed as "impaired" may not fully recover until after 2200.

The reason for this lengthy wait is painfully clear to park air and water quality specialists.

For most of the 20th century, air pollution from burning fossil fuels and agriculture deposited sulfuric acid, nitric acid and other pollutants on the Appalachian Mountains. These chemicals fell in the form of acid rain, acid snow and dry deposition. They piled up in the soils for most of the century, especially at the higher elevations where the lands' natural soil chemistry lacks acid buffers. Over time, the acids have leached from the soils into springs, streams and rivers.

"These soils are like sponges that soak up the pollutants," said Matt Kulp, the park's water resources specialist. "And, unfortunately, it takes a long time to flush all the pollution out."

Acidic water (below 6.0 pH) harms brook trout, salamanders and aquatic insects like mayflies.

In the early 2000s, the park service partnered with other federal agencies and environmental groups to persuade regional utilities to reduce air pollution in the Smokies. Power providers spent billions of dollars on pollution control equipment and reduced their worst emissions by around 90 percent. With each passing year, fewer tons of pollution fall on the Smokies.

Are there any alternatives to the 60-180 year wait? "Some national forests like the Nantahala are looking into liming their watersheds to speed up the process," Kulp said. This approach might entail using air tankers, like those used in wildland fire fighting, to scatter acid-neutralizing lime over wide areas of forest. The process would be expensive, logistically challenging, and not without risks, however.

Even faster reductions in air pollution would help, too.

The brook trout is the only trout species native to the Smokies. *Image courtesy of NPS*

Lichens Tip the Scale

Biodiversity inventory reaches 1,000th new species mark

Great Smoky Mountains National Park and its nonprofit partner, Discover Life in America (DLIA), recently celebrated the 20th year of the All Taxa Biodiversity Inventory (ATBI) with the announcement of a major milestone of the project: the naming of the 1,000th new species to science!

The ATBI has found many species in the park over the past 20 years, many of them already known to exist elsewhere, but documented for the first time here in the Smokies. Of course, scientists get truly excited when they discover a species that is completely new to science—meaning it hasn't been documented anywhere on Earth before.

Lichenologists Dr. Erin Tripp of the University of Colorado and Dr. James Lendemer of the New York Botanical Garden have just discovered five new-to-science species here—and their work brought the tally for new species to science found in the Smokies up to 1,000. The past ten years of their research, which is a part of the overall ATBI, has increased the park's knowledge of its lichen fauna tremendously.

The five new lichens were named in honor of five NPS staff who played key roles in Tripp and Lendemer's work. Here are the lichens' scientific names, their common names, and the park staff they are named for:

Heterodermia langdoniana
(Keith's Moustache Twirl)

Keith Langdon is retired after 37 years with the NPS, where he was supervisory biologist and inventory and monitoring coordinator. *"It's very nice to be recognized, but what is deeply gratifying is that our lichen researchers also honored our educators with some new species. They realize that science and education—like the fungi and alga that make up a lichen—achieve something new and different when they work closely together."*

Lecanora darlingiae
(Darling Dumplings)

Emily Darling was the education technician for the Appalachian Highlands Science Learning Center at Purchase Knob from 2009 to 2012. *"I quickly developed an interest in the lichen diversity within the park and in educating others about lichens and their sensitivity to air pollution. I am deeply honored that I was remembered in this way. I am grateful for my time working in the park, educating others, and working alongside researchers like lichenologists Erin and James."*

Lecanora sachsiana (Susan's Sacs)

Susan Sachs, education branch chief for Great Smoky Mountains National Park, helps to educate teachers and students about lichens, using citizen science to teach 7th graders how to use lichens as a bioindicator of air pollution. *"As an educator, I never expected to be recognized by the scientific community for the work I do in this way. I really appreciate the honor but mostly appreciate all of the time and effort from the research team in helping me to develop a love and understanding of lichens that I can pass along to the next generation."*

Leprocaulon nicholsiae
(Becky's Lucky Dust)

Becky Nichols is a park entomologist who works on the ATBI with various taxonomists. *"I am honored to have a lichen named after me. I have enjoyed working with James and Erin for many years, especially while updating and revising the park's lichen checklist. The park appreciates the work they've done and I'm sure we'll continue to work with them as their lichen studies continue."*

Pertusaria superiana
(Paul's Super Lichen)

Paul Super, research coordinator, Appalachian Highlands Science Learning Center, works with the researchers to secure permits and access housing at Purchase Knob Field Station, and helps them with references for grant applications. *"It is a great honor that Tripp and Lendemer consider my support of research in the Smokies significant enough to name a lichen after me. It is fun to know that, even after I retire, there will be a record of my having been here, alive and growing on trees and moss in these beautiful mountains."*

Winter Facility Closures

Many secondary and higher elevation park roads are closed to motor vehicles in winter. Upper Tremont Road (beyond the institute) may close for an extended period after winter storms. All park roads, including Newfound Gap, Cataloochee and Cades Cove, are subject to extended closures due to snow, wind and rain events. Here's the details:

Roads

Note that all park roads, including Newfound Gap Road (U.S. 441), may close temporarily for snow or other inclement weather at any time.

Balsam Mountain Road closes October 29

Clingmans Dome Road closes November 30

Forge Creek Road (in Cades Cove) closes December 31

Heintooga Ridge Road closes October 30

Little Greenbrier Road (to the Little Greenbrier Schoolhouse) closes November 26

Parson Branch Road (in Cades Cove) closed due to hazardous trees.

Rich Mountain Road (in Cades Cove) closes November 12

Roaring Fork Motor Nature Trail closes November 26

Roundbottom/Straight Fork roads close October 29

Hiking Trails

All hiking trails are open in winter. However, some trailheads will be inaccessible to motor vehicles because of seasonal road closures. For more information, call 865.436.1200, 865.436.1230 or 865.436.1297 (backcountry trails office).

For people seeking a place to play in the snow, Clingmans Dome Road (closed in winter) is popular with walkers and cross-country skiers. Walking on seasonally closed roads is permitted unless snow plowing or construction work is underway. There are no areas suitable for sledding in the park; snow-tubing slopes may be available locally.

Riding Stables

Cades Cove closes November 30

Smokemont closes November 4

Smoky Mountain (on U.S. 321 near Gatlinburg) closes November 25

Sugarlands closes November 25

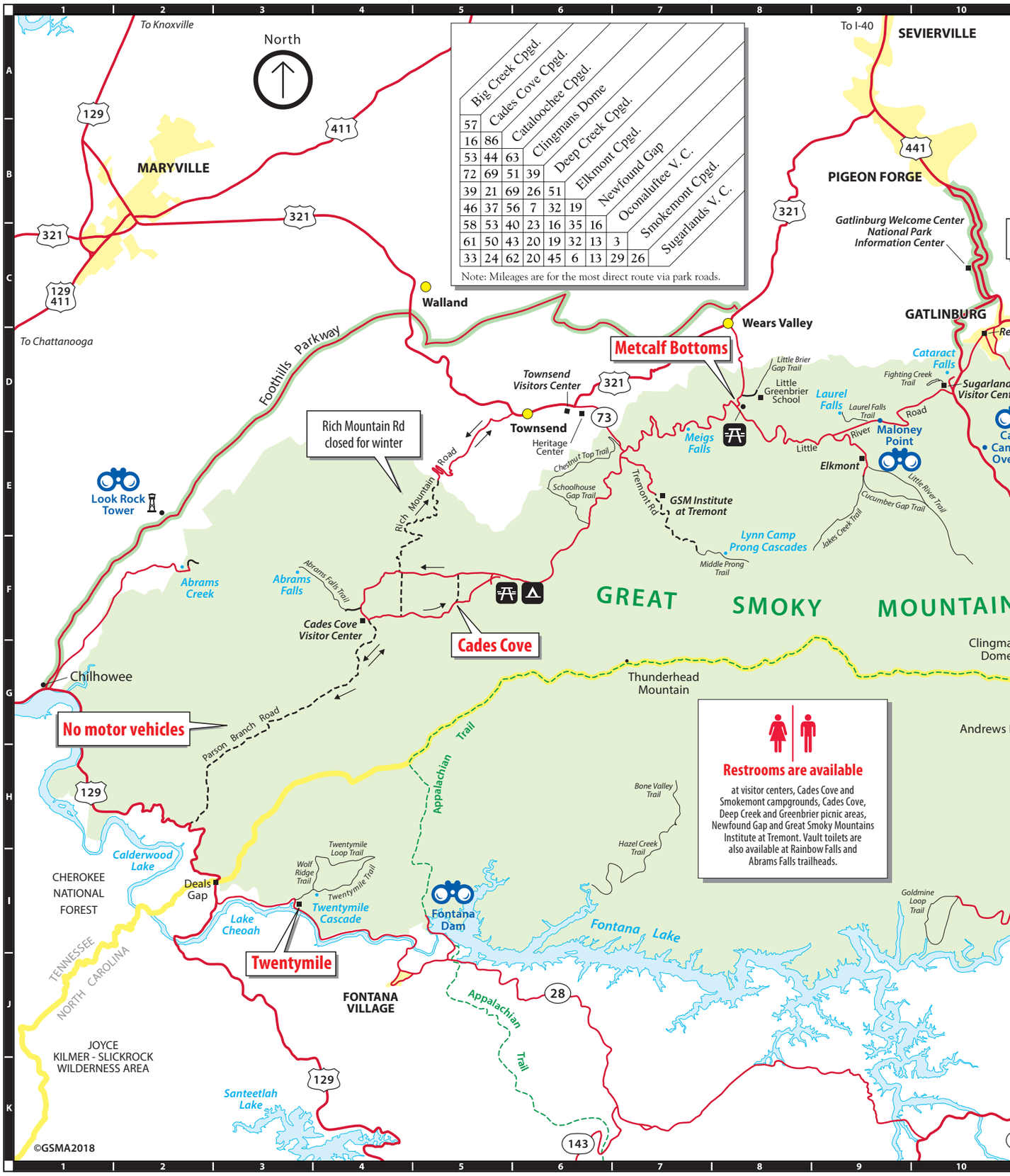
Grist Mills

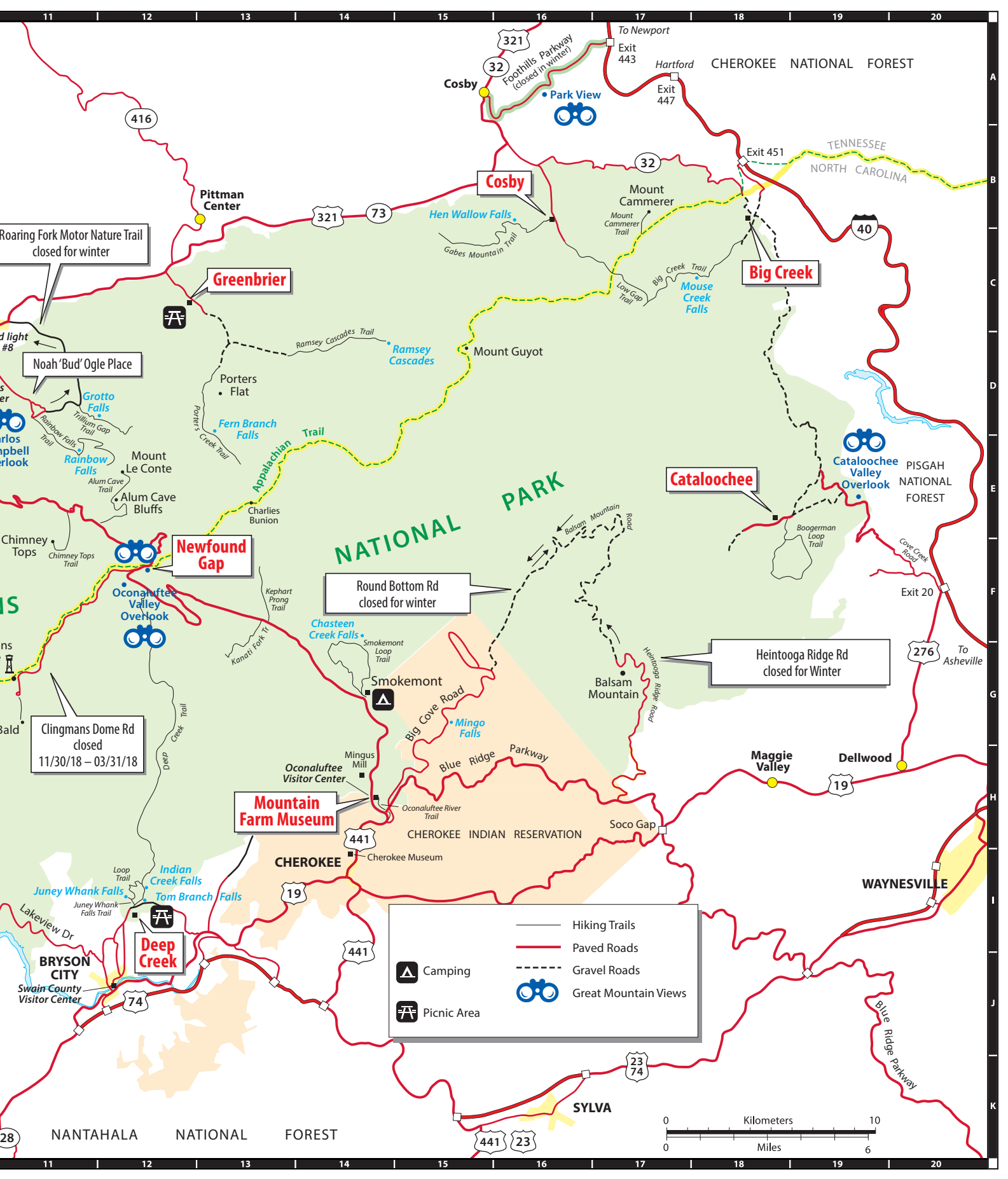
Cable Mill (in Cades Cove) closes October 31

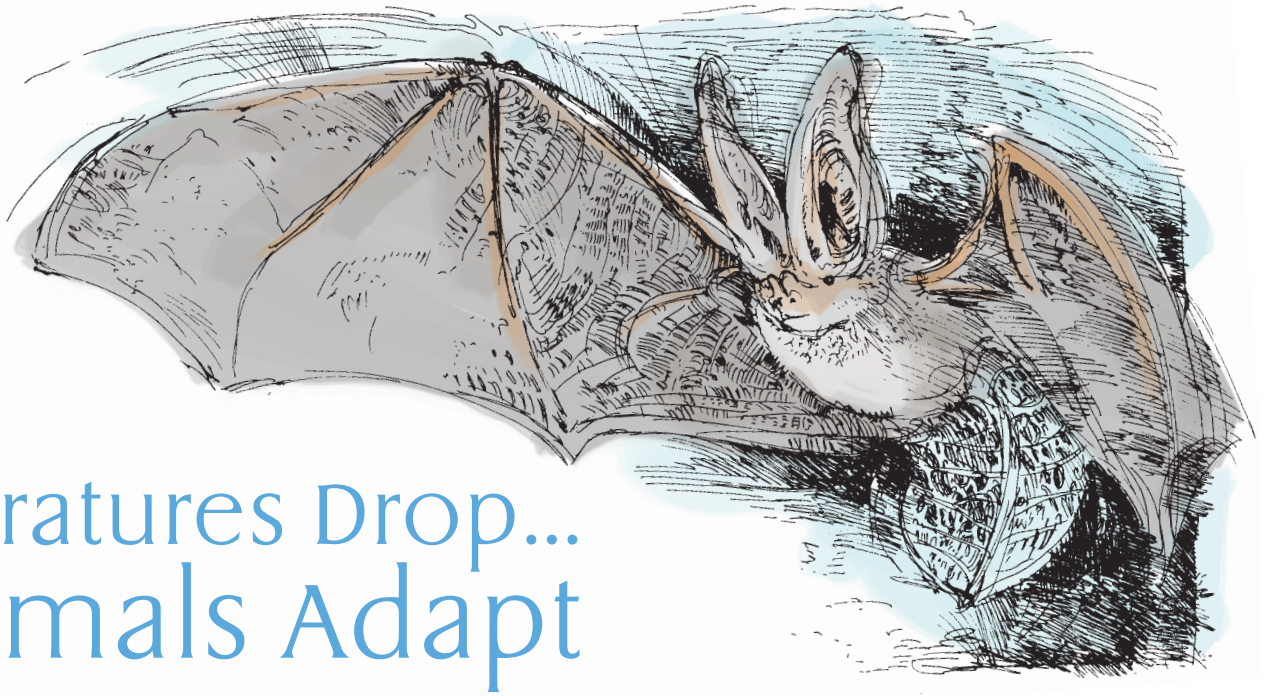
Mingus Mill closes October 31

Lodging

LeConte Lodge closes November 20




Roaring Fork Motor Nature Trail closed for winter
Noah 'Bud' Ogle Place
Clingmans Dome Rd closed 11/30/18 – 03/31/18
Round Bottom Rd closed for winter
Heintooga Ridge Rd closed for Winter
Greenbrier
Cosby
Big Creek
Cataloochee
Newfound Gap
Deep Creek
Mountain Farm Museum
Oconaluftee Valley Overlook
Cataloochee Valley Overlook
Oconaluftee Visitor Center
Swain County Visitor Center
Cherokee Museum
Pittman Center
Park View
Hen Wallow Falls
Gabes Mountain Trail
Mount Cammerer
Mount Cammerer Trail
Low Gap Trail
Big Creek Trail
Mouse Creek Falls
Ramsey Cascades Trail
Ramsey Cascades
Mount Guyot
Porters Flat
Porters Creek Trail
Fern Branch Falls
Grotto Falls
Trillium Gap Trail
Rainbow Falls Trail
Rainbow Falls
Mount Le Conte
Alum Cave Trail
Alum Cave Bluffs
Charlies Bunion
Appalachian Trail
Chimney Tops
Chimney Tops Trail
Kephart Prong Trail
Kanati Fork Tr
Chasteen Creek Falls
Smokemont Loop Trail
Smokemont
Big Cove Road
Mingo Falls
Mingus Mill
Oconaluftee River Trail
Blue Ridge Parkway
Balsam Mountain Road
Balsam Mountain
Heintooga Ridge Road
Boogerman Loop Trail
Cove Creek Road
Exit 20
To Asheville
Maggie Valley
Dellwood
Soco Gap
CHEROKEE INDIAN RESERVATION
CHEROKEE
WAYNESVILLE
SYLVA
BRYSON CITY
Lakeview Dr
Juney Whank Falls
Juney Whank Falls Trail
Indian Creek Falls
Tom Branch Falls
Loop Trail
Deep Creek Trail
Foothills Parkway (closed in winter)
To Newport
Exit 443
Hartford
Exit 447
Exit 451
TENNESSEE
NORTH CAROLINA
CHEROKEE NATIONAL FOREST
PISGAH NATIONAL FOREST
NANTAHALA NATIONAL FOREST
GREAT SMOKY MOUNTAINS NATIONAL PARK
Blue Ridge Parkway
Hiking Trails
Paved Roads
Gravel Roads
Great Mountain Views
Camping
Picnic Area
0 Kilometers 10
0 Miles 6



When Temperatures Drop... Animals Adapt

Winters in the park can bring severe cold and heavy precipitation, especially at higher elevations. As food becomes scarce, the park's 72 species of mammals must adapt. While some migrate or hoard food underground, others have evolved varying methods of hibernation in order to survive this inhospitable period of the year. One park mammal even gives birth mid-winter.

by Dr. Don Linzey

What exactly is 'hibernation'? Hibernation comes from the Latin *hibernare,* which means 'to pass the winter' and usually implies the achievement of a 'sleeping' or torpid state. In such a state, heart rate, breathing rate, and body temperature are all reduced to very low levels in order to conserve energy. Some park mammals become totally inactive for many months (true hibernation), while others enter a semi-dormant state from which they may return in a short period of time if disturbed (partial hibernation).

Mouse nests

The meadow jumping mouse and the woodland jumping mouse are two of the park's most extreme true hibernators, hibernating longer than any other park mammal. The meadow jumping mouse prefers meadows, bogs, grasslands, and forest glades, whereas the woodland jumping mouse inhabits the spruce-fir and hemlock-hardwood forests.

Adult jumping mice are approximately eight to nine inches long, with long hind legs, large hind feet, and an extremely long tail. Locomotion is normally by means of short hops, although when frightened they may leap three feet or more. The tail serves as a balancing agent, similar to that of a kangaroo.

By fall, most jumping mice have put on about six to eight grams of fat. The hibernation period is normally spent in a lined burrow below the frost line, although some individuals have been found in nests of grass or leaves beneath logs and in coal-ash piles. Entering hibernation in late September and October and emerging in late April or early May, jumping mice sleep for about half of the year.

Woodchuck burrows

The woodchuck, also known as the groundhog or 'whistle pig', is another of the park's true hibernating mammals.

Woodchuck burrows may be up to five to six feet deep and 24 to 30 feet long with offshoots containing nesting, hibernation and waste-storage chambers. Before the woodchuck goes to sleep, the hibernating chamber is isolated from the rest of the burrow by plugging the entrance with dirt.

A hibernating woodchuck is coiled into a tight ball with the head resting on its lower abdomen and the hind parts and tail wrapped over the head.

Woodchucks do not leave their burrow during hibernation and cannot be immediately awakened if disturbed.

As temperatures warm, woodchucks undergo alternating bouts of torpor and arousal before their final emergence in the spring. Woodchucks continue to lose weight for some time after hibernation, presumably because of the absence of green food and the stress of reproductive activities.

Bat caves

During the colder months when flying insects are unavailable, the park's 13 species of bats must either hibernate or migrate to warmer areas. Three of our bats (red, hoary and Seminole) usually migrate to warmer southeastern states or, in some cases, fly to Central or South America. The park's ten remaining bat species hibernate in caves, mines and other protected sites.

Prior to hibernating, bats accumulate layers of fat amounting to about one-third of their weight. Many cave bats form dense clusters in order to share body heat. Flights within and between caves are not unusual, but energy expenditure is kept to a minimum.

According to Dr. Michael Harvey, a renowned bat expert who has done extensive research in the park, "a hibernating bat can survive on only a few grams of stored fat during the five- to six-month hibernation period." A single arousal can cost a bat as much energy as it would normally expend in two to three weeks of hibernation. Once disturbed, such a bat responds by slowly extending its wings, opening its mouth and emitting a long drawn-out squeak. Heart rate increases, the rate of breathing accelerates, and, within 15-30 minutes after being disturbed, the bat is ready to fly. If aroused too often by persons entering caves, hibernating bats may starve to death before spring.

Bear dens

We have learned there are 13 kinds of hibernating mammals in the park: ten species of bats, the woodchuck, and the meadow and woodland jumping mice. But wait! What about the black bear?

While many people think of the black bear as the quintessential hibernating mammal, black bears are different from all of the other mammals discussed in this article. This is because female black bears in the park give birth to their young in January and February. The female black bear maintains her general metabolism at nearly normal levels during the colder months and merely enters into a deep sleep in her denning site.

Prior to denning, black bears accumulate most of their fat reserves during summer and fall, eating fruits, nuts and acorns. Typical examples of den sites are in tree cavities, hollow logs, under overhanging rock ledges, beneath fallen evergreen trees, or any other spot that will shelter the bear from the cold winds, rain and snow.

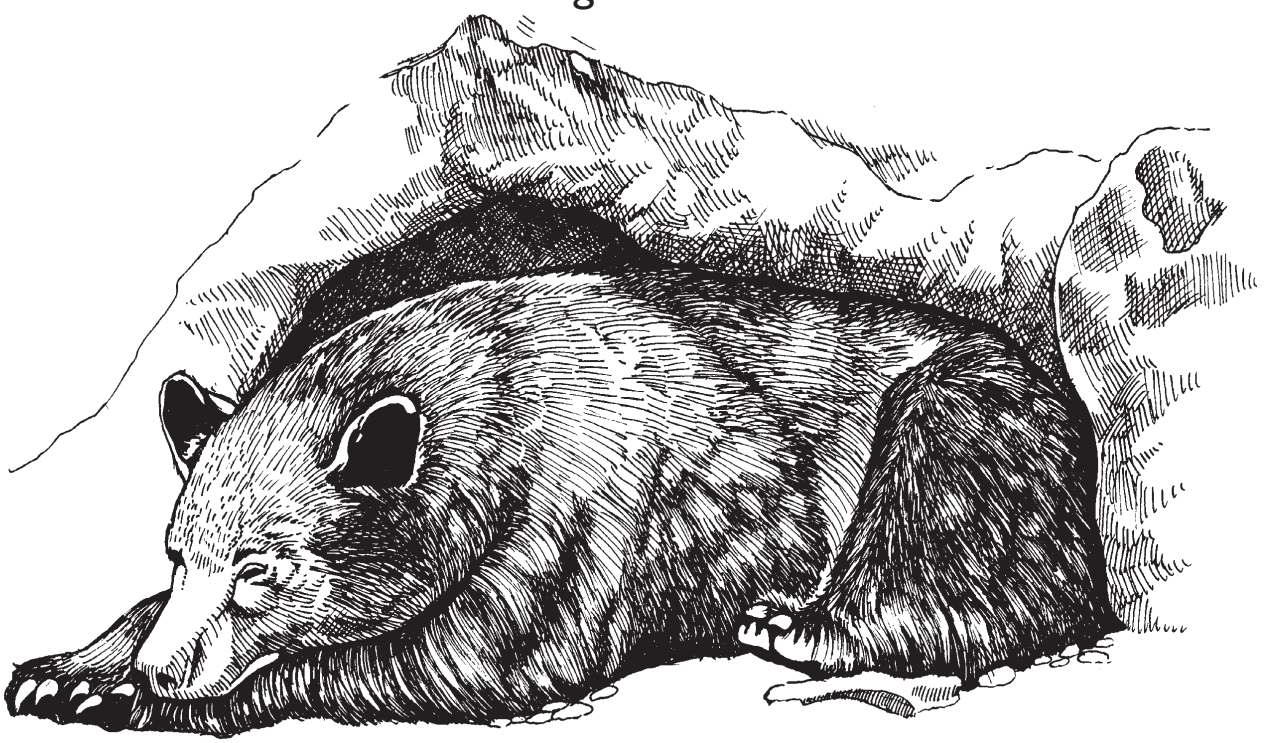
Even in her semi-dormant state, the female is alert to her cubs' needs, responding to vocal demands for warmth, comfort and suckling. Most litters consist of two cubs, although litter sizes may range from one to six. At birth, cubs weigh less than one pound, which is approximately 1/250th of the mother's weight, compared to 1/20th for humans. No other placental mammal gives birth to relatively smaller young. Short gestation and small cub size are adaptations for reproducing during hibernation. Mothers and their cubs usually emerge from their dens in the park in late March or April.

Help for humans?

Researchers are currently studying the metabolic pathways animals use to cope with hibernation and are gaining insights into new ways to treat ailments in humans. For example, a hibernating mammal has a reduced heart rate and blood flow similar to a person in cardiac arrest, yet the hibernator doesn't suffer the brain damage that can occur in people. Understanding the neuroprotective qualities of hibernating animals may lead to the development of a drug or therapy to save people's lives after a stroke or heart attack.

Medical therapies related to hibernation are already being used to help brain injury patients in hospitals. Known as therapeutic hypothermia, the cooling adaptation employed by hibernating mammals may also someday be adopted for space travel in order to reduce the amount of food, water and waste required on the spacecraft, as well as cope with smaller living quarters and less space for exercise.

Native Americans called bears 'keepers of the medicine' and revered them for their ability to survive for months without eating.



Winter Tree ID

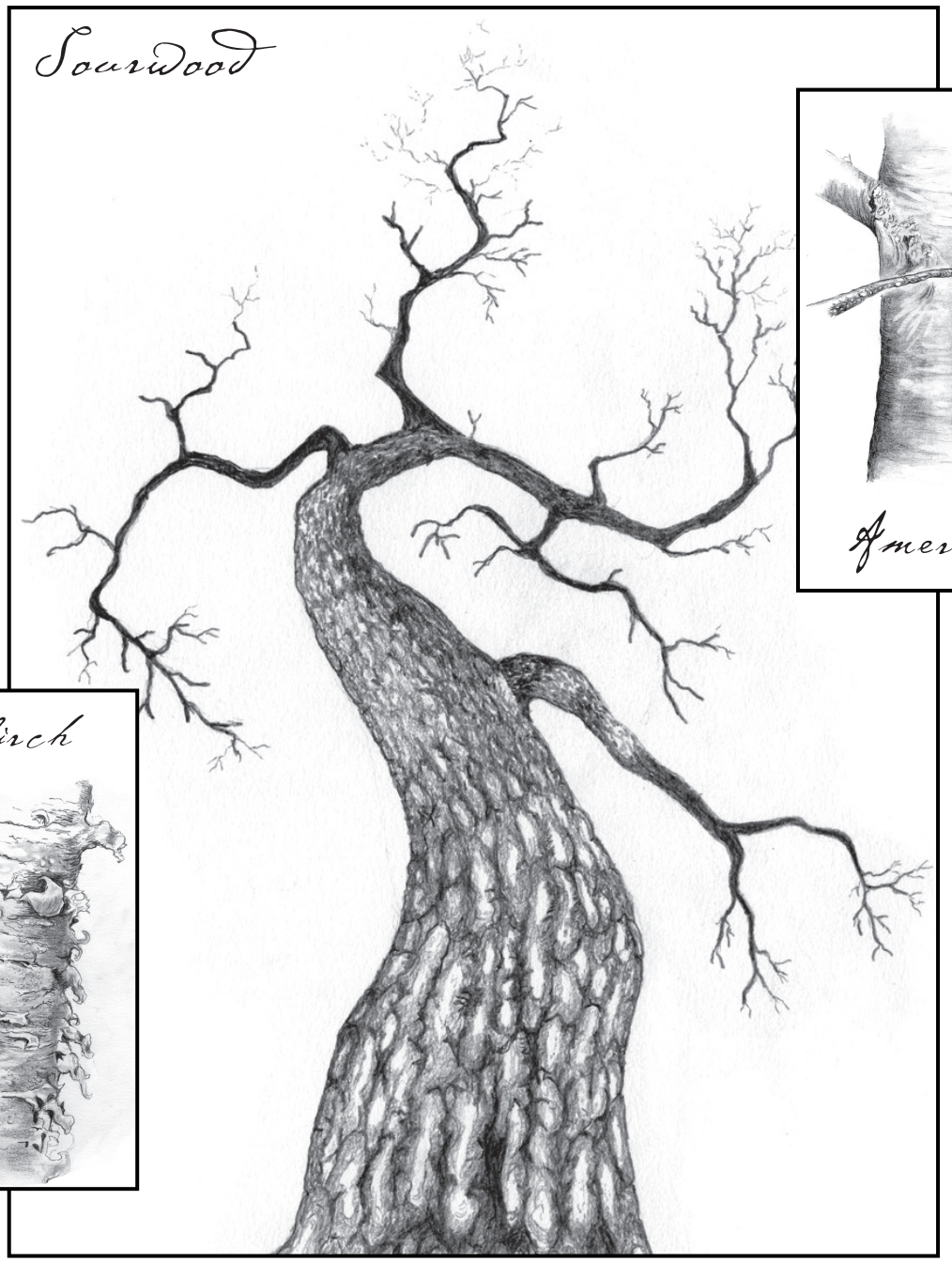
Learn to identify three tree species in winter

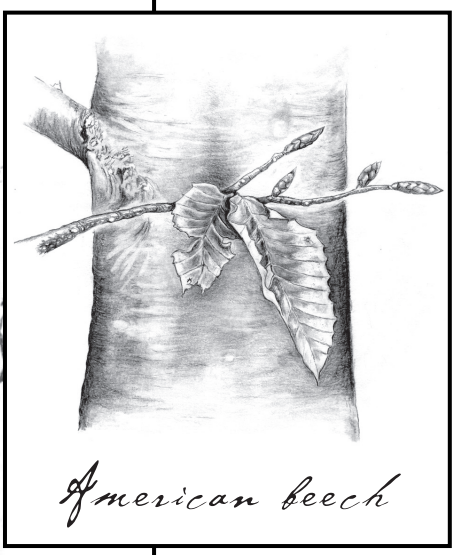
Story and illustrations by Shannon Welch

Trees are the soul of the Smokies. Appearing as a seasonally evolving palette of green and gold leaves that rustle from river to ridge top, these silent sentinels frame the memories of 11 million annual visitors.

One hundred species of trees inhabit Great Smoky Mountains National Park. How do we tell them apart? Leaves make identification easier, but it's often difficult to identify a tree correctly when your only clues are buds, bark and branch structure. This is the challenge that exists in winter.

A few species are unmistakable, even in the frigid days of February. Watch for these three sleeping beauties as you enjoy your winter visit to the Great Smoky Mountains.





Sourwood *(Oxydendrum arboreum)* trees are prized both for their fall color and for their honey. In winter, look for deeply furrowed bark like the skin of an old alligator. This tree's crooked twisting trunks are formed by the pursuit of sunlight in the ever-changing forest canopy.

As storms or old age claim neighboring trees, sourwoods redirect new growth toward increased light. Eventually the canopy closes again. A new patch of sunlight entices the growing trunk to reverse its course, forming bends and elbows. These reliably crooked trunks were prized by European settlers, and many tons of rocks were cleared for farming thanks to sturdy wooden sleds made with upturned sourwood-trunk runners.

The **yellow birch** tree *(Betula alleghaniensis)* is common in the park's upper elevations. Named for its unique silvery-blonde color, the tree has richly textured bark that is a combination of velvety smoothness, ragged strips, and contours resembling wood curls left behind by a craftsman's chisel.

Many yellow birches begin life on the mossy trunks of fallen trees. The supporting log eventually decomposes, and shaggy trees remain elevated on stilts of sturdy roots.

If a master artist carved trees from polished granite, the result wouldn't equal the majesty of the **American beech** *(Fagus grandifolia)*. No other tree can be mistaken for a mature specimen of this slow-growing giant. Its bark stays a youthfully smooth gray even in old age, although some individuals collect adornments of moss and lichen.

The smooth trunks are tempting to human hands, and carved graffiti is an unfortunate scar on many. Sharply pointed, bullet-shaped buds are another characteristic.

Beeches grow in groves, and younger trees are marcescent, meaning they hold onto their dried leaves despite frigid winter winds. Magnificent gray giants and topaz-hued saplings are the unmistakable hallmark of a beech forest in winter.

Following the Calcium Cycle

How antlers return to the earth

Story and illustrations by Shannon Welch

Whitetail deer and elk are charismatic residents of Great Smoky Mountains National Park. Along with waterfalls and long-range vistas, the two cervids (members of the deer family) rank high on visitors' bucket lists. Mature bucks and bulls with impressive antlers get lots of attention, yet the bony headgear is but a single stage in the constant cycling of calcium through the food web.

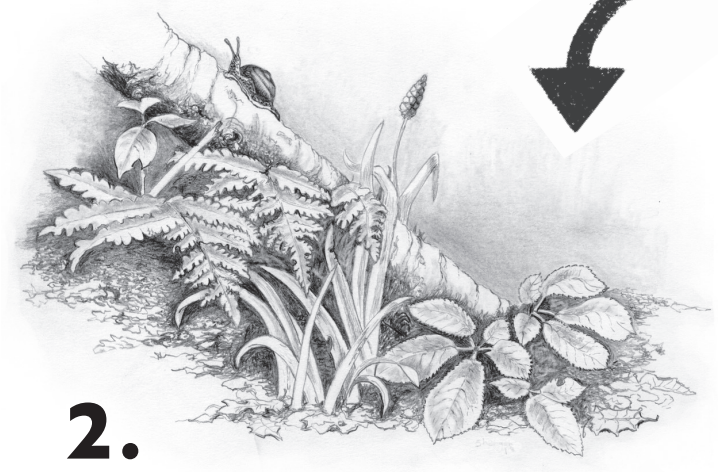
Deer and elk have antlers, not horns. They're made of bone and are shed and regrown every year. Elk antlers can lengthen an astounding inch per day in spring. Growing antlers are spongy and covered in blood-filled tissue called velvet. They're sensitive to touch, easily damaged, and grown from the tips outward, like tree branches. Later the soft cartilage is replaced, from base to tip, by progressive mineralization of calcium and other nutrients. Bone is formed and the velvet falls away.

Calcium is available for these animals in many plants they eat, but the demands of so much growth cannot be met in just a few months. Deer and elk 'borrow' calcium from their skeletons to meet the extra requirements, mainly pulling it from the ribs, sternum and shoulders. This causes temporary osteoporosis, and affected bones thin by up to 40 percent. The effect is temporary, though, and a healthy diet restores bone density by September.

Cervids will also eat the calcium-rich shells of land snails, perhaps accidentally, and rare yet credible reports exist of baby birds being eaten for extra nutrition. This behavior hasn't yet been recorded in the Smokies, but soil calcium levels are naturally low here. Every bit is crucial.

The cycle of antler growth requires a lot of resources, and it neither begins nor ends with the deer and elk that wear them.

1. Antlers are shed in late winter. Mice, squirrels, and other rodents gnaw on the pointed prizes, eagerly adding calcium, phosphorous, magnesium and other minerals to their bodies.



2. Eventually the antler-eating rodents die, and the nutrients in their bodies are returned to soil for plant growth. Land snails are especially good at cycling calcium back into the food chain as they form their shells and are in turn eaten or decomposed by other forces.

3. Antlers regrow, fueled by the nutrients in the deer or elk's diet.

IF YOU LOVE THE SMOKIES

Join the park's partners in helping to protect this place for ourselves and future generations

Great Smoky Mountains Association

Since 1953, Great Smoky Mountains Association has supported the educational, scientific and historical efforts of the National Park Service through cash donations and in-kind services. By the end of 2018 alone, the association will have provided more than $2 million in assistance that includes saving hemlock trees, living history demonstrations, environmental education programs, historic preservation, and salaries for wildlife personnel.

Association members receive a number of benefits to keep them informed about special events in the park and issues affecting the Smokies:

- Subscription to the semi-annual, full-color magazine *Smokies Life*
- Digital access to the award-winning quarterly park newspaper, *Smokies Guide*, and the association's newsletter, *The Bearpaw*
- A 15-20% discount on books, music, gifts and other products sold at park visitor centers and at GSMA's web store
- Special GSMA "Hiking 101" outings to Twentymile Loop, Porters Creek, Gregory Bald, Boogerman Trail, Charlies Bunion, cemeteries, and more. All hikes are led by knowledgeable staff who love to share the park with others. Groups are limited to 20 people. Also this year, ask us about Gear Fest programs and special gear discounts.

Join today using the coupon to the right, visit SmokiesInformation.org, or call us at 888.898.9102 x349. Memberships start at just $35 per year.

Smoky Mountain Field School

An exciting variety of adventures awaits adults who long to get out and explore the park accompanied by expert guides. Programs are offered by the Smoky Mountain Field School and include Mt. Le Conte overnights and workshops on wildlife, edible plants, wildflower photography, animal tracking, bird watching, salamanders and mountain cooking. One-day programs start at as little as $79. Contact: 865.974.0150 or visit smfs.utk.edu.

Great Smoky Mountains Institute at Tremont

Great Smoky Mountains Institute at Tremont is turning 50 in 2019 and continues its long tradition of providing residential environmental education programs in Great Smoky Mountains National Park. Up to 5,000 students and adults annually attend workshops and school programs at the Institute. Tremont's adult workshops include birding, backpacking, environmental education, teacher escapes, naturalist weekends and photography.

GSMI at Tremont also offers a variety of summer youth camps in the national park lasting from 6 to 11 days and starting at $589. Fees include meals, lodging and most equipment. Offerings include Discovery Camp (ages 9-12), Wilderness Adventure Trek, Girls in Science (ages 12-15), and Teen High Adventure (ages 13-17). Contact 865.448.6709 or visit gsmit.org.

Discover Life in America

The Smokies are known for their biodiversity, and Discover Life in America recently celebrated the 20th year of the All Taxa Biodiversity Inventory with the announcement of a major milestone of the project—the 1,000th new species to science! DLIA formed 20 years ago to identify every variety of plant and animal in the park. The organization involves leading biologists from around the globe in collecting specimens in the park and identifying what they found.

DLIA recruits legions of volunteers and interns to become 'citizen scientists' who help with the work. These participants get an insider's look at the parks and preserves, as well as firsthand knowledge of biology, field science and laboratory practices. Funding for DLIA comes from donations from individuals and institutions as well as facility support provided by the national park.

Learn more at dlia.org or by calling 865.430.4756.

Friends of the Smokies

Friends of the Smokies is an official nonprofit partner of the National Park Service and Great Smoky Mountains National Park that helps to raise funds and public awareness and provide volunteers for park projects.

Since 1993, Friends of the Smokies has raised $62 million to support critical park projects and programs including:

- Management and research of bears, elk, native brook trout and other wildlife
- Intensive rehabilitation projects on the park's most impacted hiking trails like Alum Cave, Chimney Tops and Rainbow Falls
- Hands-on, curriculum-based environmental education for school children in Western North Carolina and East Tennessee
- Facilities and improvements to maintain a world-class visitor experience
- Historic preservation of cabins, churches and mills in Cades Cove and Cataloochee Valley

Your support of Friends of the Smokies makes these projects and much more possible.

Make a donation and become a member today at FriendsOfTheSmokies.org, purchase a specialty license plate at BearPlate.org, or join FOTS for one of its special events like the Evergreen Ball or Smokies Stomp Barn Party. Your donations help preserve and protect Great Smoky Mountains National Park for generations to come. For more information, visit FriendsOfTheSmokies.org or call toll-free 800.845.5665.

GSMA MEMBERS

Get Rooted in the Smokies!

- ❑ **Acorn (youth) Membership $15**
- ❑ **Buckeye Annual Membership $35**
- ❑ **Chestnut Annual Membership $100**
- ❑ **Dogwood Membership $200**
- ❑ **Hemlock Lifetime Membership $1,000** ***payable in 5 installments***
- ❑ **Lookout League Business Memberships $250-$10,000**

SIGN ME UP!

Name(s) _____

_____

Address _____

_____

Email (for *Cub Report*) _____

_____

Phone # _____

Please include your check with this form.
Mail to: GSMA, P.O. Box 130, Gatlinburg, TN 37738

Winter Trekking: The Essentials of Preparation

Tips from the insiders on how to treat the park and stay safe at the same time

Illustration by Emma DuFort

PARK Etiquette

When it comes to getting out on the trails during winter, adequate planning and preparation greatly increase the chances for a safe and successful adventure. No one knows this better than AT thru hiker and *Smokies Life* contributor David Brill, who authored the GSMA title *Into the Mist: Tales of Death and Disaster, Mishaps and Misdeeds, Misfortune and Mayhem in Great Smoky Mountains National Park.*

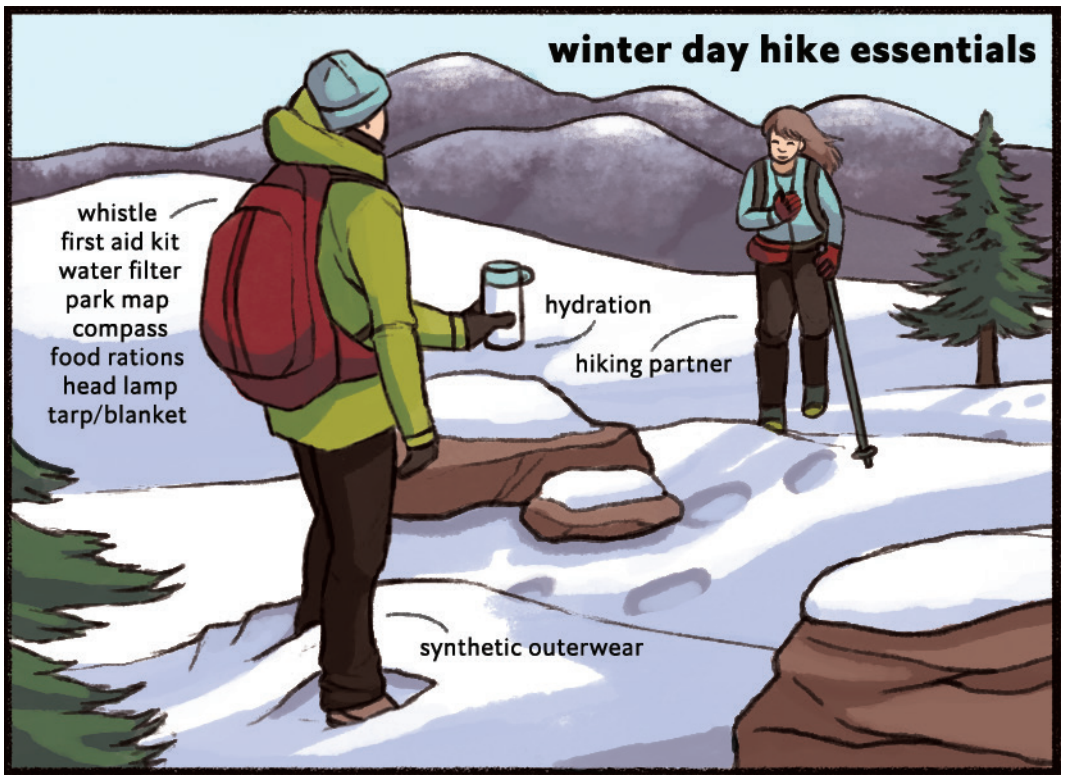
Q: *What inspired you to write a book about death and disaster in the Smokies?*

A: I wrote *Into the Mist* to educate and inform visitors with the hopes of preventing future deaths. The opening chapter recounts the death from hypothermia of John Mink, a graduate student from Indiana who entered the park's backcountry in February 1984 and hiked into the teeth of a blizzard. The chapter retraces the actions that proved decisive in the outcome, including the decision to hike alone in winter, failure to turn around when snow began to accumulate, failure to pack a shelter, and the choice to wear cotton jeans and down parka, both of which proved vulnerable to the wet snow.

Q: *With that gruesome scenario in mind, what are some of the basic guidelines hikers should follow when planning any winter trip?*

A: First and foremost, never hike alone or split up from your partner or party. Remain on established trails. Carry adequate food and, if camping, stove and fuel—and budget an extra day of food and fuel in case you become stranded. Carry a pack cover, rain jacket and pants, multiple layers of insulating synthetic (non-cotton) clothing and a headlamp or other light source and, when planning to camp, a shelter and synthetic-fill sleeping bag (down is useless when wet).

Q: *Some folks consider time spent in the woods as an opportunity to unplug.*



But should they carry their cell phone just in case?

A: Yes, I recommend someone on the trek pack a fully charged cell phone and enter the park's emergency dispatch number (865.436.9171) before heading out. But be aware that much of the park is out of range of cell service. Carry a park map and compass and track your location on the map as you progress. Knowing where you are can expedite rescue. Share your planned itinerary with friends or family members, and advise them to call the backcountry office (865.436.1297) if you fail to exit the park on schedule.

Q: *What are some other items you should have along to ensure safety when camping?*

A: It's a good idea to carry a filter or other purification system for producing safe drinking water. I also like to carry an emergency whistle and basic first-aid kit, because you never know when these will come in handy.

Q: *You had an experience not long ago where you did need these extra emergency items, right? Can you tell us about that?*

A: On April 25, 2018, I was on an overnight backpacking trip on the Old Settlers Trail with Great Smoky Mountains Association's archivist and librarian Mike Aday. During our last stream crossing, I saw Mike slip and plunge feet-first into the water, and his awkward efforts to self-extract provided the first clue that something was seriously wrong. As he pulled himself up onto the flat plane of a card table-sized rock, it became obvious that his leg was broken.

Q: *Based on your experience, what should hikers do in case of an emergency with an injury?*

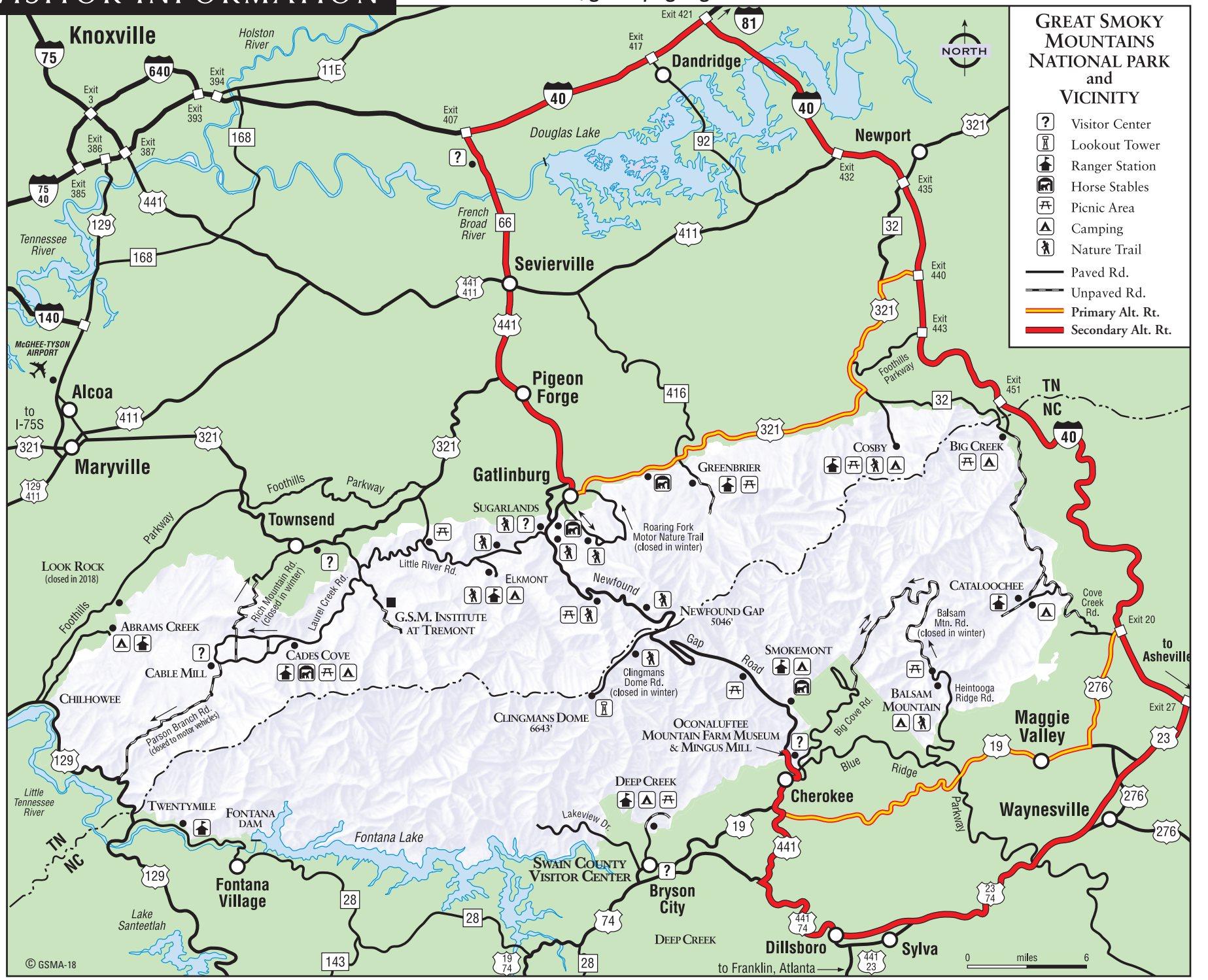
A: If you can acquire a cell phone signal, call emergency dispatch (865.436.9171) or dial 911. Remain with the injured party until help arrives. Remain calm and focus on actions that will help speed the rescue and ensure the comfort and survival of the victim. Keep the victim warm and hydrated. Avoid liquids that contain alcohol or caffeine. Issue series of three spaced blasts on the emergency whistle every few minutes to alert the rescue crew of your location. If you are in an open area visible from the air, display brightly colored clothing or gear. Finally, use what basic first-aid techniques you know, but do not attempt invasive intervention unless you are medically trained.

To read more about mishaps and misdeeds in the park, pick up Into the Mist *in any Smokies visitor center bookstore, where you can also read about the outcome of David and Mike's adventure in the Fall 2018 issue of* Smokies Life *magazine.*

All backcountry campsites require permits. Visit the park's backcountry camping page to acquire a permit and review rules and regulations nps.gov/grsm/planyourvisit/backcountry-camping.htm.

VISITOR INFORMATION

For more information, go to nps.gov/grsm



Information
General park info:
865.436.1200 • nps.gov/grsm
Backcountry information:
865.436.1297
smokiespermits.nps.gov
To order maps and guides:
865.436.7318 x226
SmokiesInformation.org

Emergencies
For emergencies after hours:

Park Headquarters
865.436.9171

Cherokee Police
828.497.4131

Gatlinburg Police
865.436.5181

Hospitals
Le Conte/Sevier County
865.446.7000
Middle Creek Rd.,
Sevierville, TN

Blount Memorial
865.983.7211
U.S. 321, Maryville, TN

Haywood County
828.456.7311
Waynesville, NC

Swain County
828.488.2155
Bryson City, NC

All-access
Restrooms at park visitor centers (Cades Cove, Oconaluftee and Sugarlands) are fully accessible. Sugarlands Valley all-access nature trail is on Newfound Gap Road just south of Sugarlands Visitor Center.

Avoid the fine
Picking or digging plants is prohibited in the park. Persons feeding wildlife are subject to a $5,000 fine. Pets are only permitted on the Gatlinburg and Oconaluftee River trails, which allow dogs on a leash.