

## White Mountain National Forest Boulder Loop Interpretive Trail



The Boulder Loop Trail is located off of the Kancamagus Highway near the Covered Bridge Campground. The trail passes through boulder fields and various forest types. At its highest point, the trail takes you to 1,000 feet of elevation with ledges that offer spectacular views of the Passaconaway Valley.

This guide will give insight to many features of the White Mountain National Forest. Fifteen stops are featured along the way, offering a glimpse of the forest's history, biology, and Forest Service management. **The stops are numbered in a clockwise order. Turn left at the first trail juncture.** You will be guided by yellow blazes that mark the route. Please stay on the trail to reduce visitor use impacts on the surrounding area.

Before you set off on your hike, make sure you are prepared and exercising safe hiking practices. It is recommended that you have supportive footwear such as hiking boots. Be sure to bring plenty of water. Contact the nearby Saco Ranger Station or refer to Hike Safe principles for more helpful strategies.

### Stop 1- Quarried Stone

See the large cuts on the boulder in front of you? The layered tiers with vertical drill scars provide evidence of previous quarrying and harvesting of stone blocks. The blocks harvested here were used for construction of the nearby Albany Covered Bridge's abutments in 1857. Quarried before the age of mechanized drills and dynamite, splitting these stones was very intensive, with only hand tools used and animal powered vehicles used.

### Stop 2- Bedrock and Glaciers

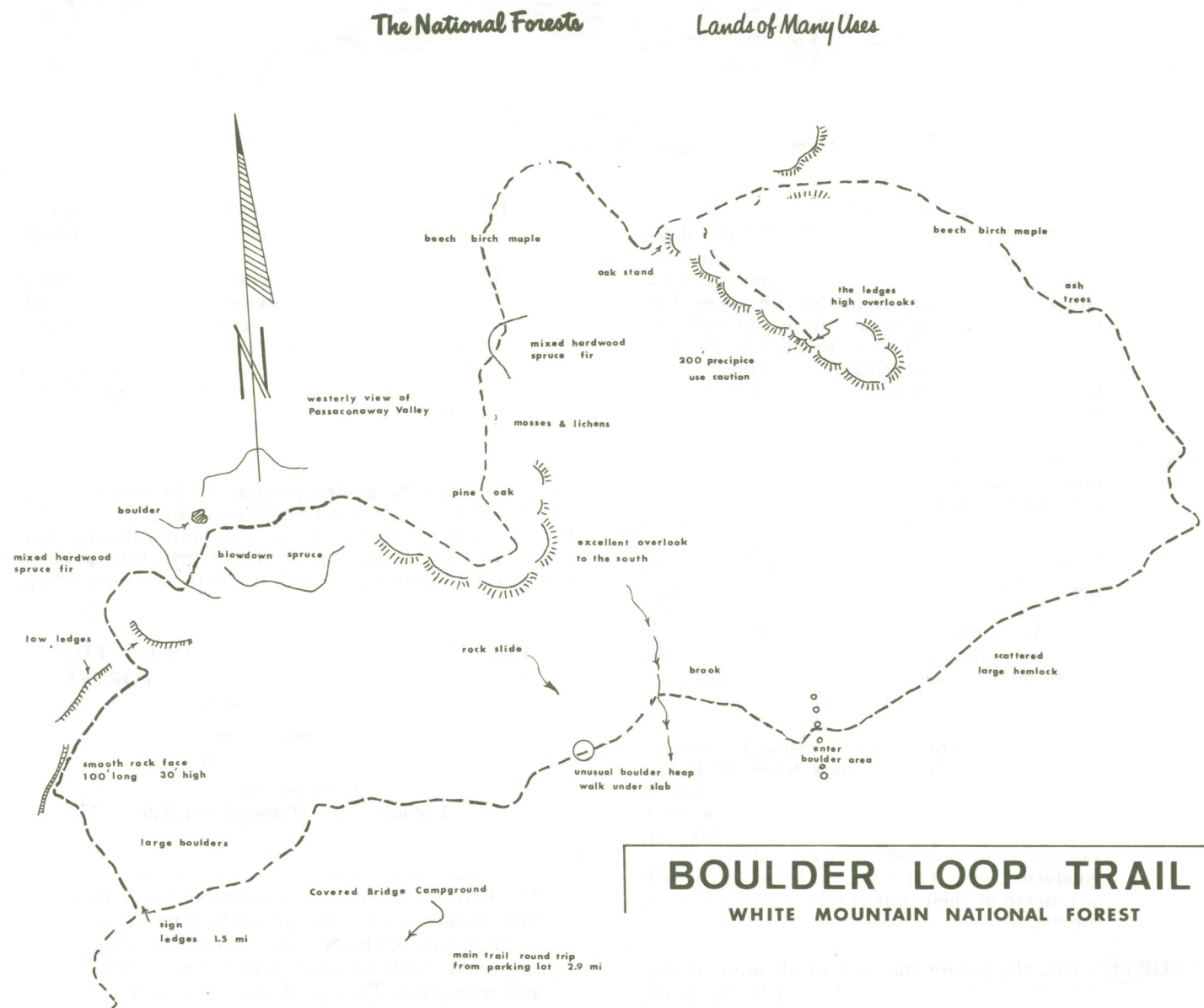
Glacial movement exposed the bedrock in front of you, offering us a glimpse of geologic history. The lines and fractures in the bedrock cliff give insight to its original formation. The consistent parallel spacing hints at the contraction of volcanic magma as it cooled. As this process took place, the cooling caused the rock to shrink, forming these layers and joints. If you look closely, you can even see where two geologic masses came together to form this single bedrock mass. The finer, more tightly grained stone serves as contrast to the coarsely grained stone lower on this rock face.

### Stop 3- Forest Types

So far, you have passed through a deciduous forest, which is characterized by broad-leaf trees that lose their foliage each autumn. Starting at this point, conifer trees increase in number along the trail. Conifers, also known as evergreen trees, derive their name from the latin word *conus* meaning "the one that bears cones."

### Stop 4- Rotten Rock

Look closer at the boulder in front of you. Notice how much of its surface seems to be crumbling apart? Commonly these fragments are referred to as 'rotten rock,' but in geological terms it is known as *grus*. This occurrence is most notably found in granitoid rocks, which includes granite. Minerals in these types of rock are not always stable, meaning that outside elements like rain can react with the rock, causing "rot" or disintegration. The result is "rotten rock."



### **Stop 5- First Overlook**

This overlook presents a southeast view over the Passaconaway Valley, featuring the Swift River and Kancamagus Highway. The names Kancamagus and Passaconaway both originate from Native American Chieftains whose people settled in this valley during the 1600s. They were one among more than 12 New England tribes inhabiting the region.

The first Europeans settled in the Passaconaway Valley in the 1700s. Few hardy families were successful at farming alone—most became involved in logging to make ends meet. By the turn of the century, the community had grown to be teeming with summer tourists and winter loggers.

By 1918, much of the view in front of you had been completely devastated through logging. That year, much of the Passaconaway Valley and thousands of surrounding acres were purchased by the U.S. Government to create the White Mountain National Forest. Industrial logging on timber ceased, while forest and wildlife management began, allowing for the restoration of the landscape through responsible conservation. The Kancamagus Highway opened as a throughway from Conway to Lincoln in 1959, bringing visitors to the valley in the millions each year.

### **Stop 6– Soils / Tree Species**

The cool moist slopes in this vicinity provide good growing conditions for Hemlock and White Birch.

In front of you is an example of Eastern Hemlock. The surest way to identify hemlock is by their flat needles that grow along the sides of its twigs. The undersides of the needles have a white stripe up its length. Hemlocks produce very small round cones less than a half inch in length.

White Birch, also known as Paper Birch, is easily identified by its white and layered peeling bark. This native tree not only is a staple of New England, it is also New Hampshire's official state tree.

### **Stop 7– Soils / Tree Species continued**

Notice the sudden transition in vegetative growth? This slope is exposed to the sun's rays during midday. It is therefore hotter and drier than slopes that receive less direct sunlight. The large conifers are absent here, mainly because they grow better in a moister environment.

### **Stop 8- Red Oak**

Around you is dominantly the Red Oak tree species. It can be identified by its sharp pointed, lobed leaves. Red oaks tolerate a hotter exposure and drier, stonier soil than most other trees in the region. On this rocky outcrop with a greater extended exposure to the sun, the red oaks have little competition from other species. In addition to being more tolerant, Oaks compete for needed resources by growing at a fast rate, up to 12 inches in a year. They produce acorns which are an important source of food for wildlife including deer, black bears, turkeys, rodents, and more. Red oaks in particular have the largest crop production out of any oak species. Oaks are known for their large dense canopy that produces colorful foliage during the fall season.

### **Stop 9– Overlook**

Be careful as you approach the ledges. This location offers views toward the South. On the back of this handout is a key to help identify many of the peaks you see. Enjoy!

### **Stop 10 - Trail Work**

When constructing and maintaining trails, it is extremely important to manage watershed and erosion. These stone staircases and water bars help to protect from the damaging effects of erosion. Both assist by directing water off of the trail. Stone stairs additionally help provide a more durable stepping surface that will last for many years to come.

All the stones that are used in the construction of such features are harvested on site from the surrounding hillside. This is done with use of hand tools for excavating. To transport the stones, grip hoists and rigging equipment are utilized.

This process as a whole is labor intensive and requires skilled crews to accomplish.

### **Stop 11– Timber Management**

Forest management in cooperation with wildlife, recreation, soils, and hydrology, is a major role and function of the Forest Service. Timber harvesting is another way National Forests manage their resources. Foresters work with wildlife biologists to identify important needs of the ecosystem. These objectives range from forest health to creation of wildlife habitat. Targets are then developed to meet these needs and dictate the type of harvesting that takes place. Before you is an example of where a “regeneration” or “harvest cut” took place. As you would weed and harvest your garden at home, this produces stronger and larger trees in the long run.

### **Stop 12- Large Hemlocks**

Earlier you learned to identify some conifers by their needles and cones up close. But where do you start with more mature cases where you can't reach their leaves or needles, like those at this location?

Other ways to identify various trees is simply by their bark or overall shape and growing behavior. For example, these older hemlocks can quickly be identified by their reddish bark with wide ridges and lack of branches closer to its base, only being closer its top. A spruce in comparison will have branches growing the entire length of its trunk.

Hemlock trees thrive in cool humid climates. With shallow root systems, they need very moist soils and are susceptible to drought. Large groups of eastern hemlock tend to develop their own microclimates because of their dense canopy, dense shading, deep duff layer (layer of decaying organic material on the ground), and subsequent retention of moisture and uniformly low temperatures.

This slow growing species is able to grow in the shade of other trees. Although slow growing, these trees can attain a height of 160 feet and trunk diameter of 6 to 7 feet. It takes twenty to forty years for the tree to begin seed production. It may take 250 to 300 years to reach maturity. Long lived, they may approach 1000 years of age.

### **Stop 13– Lichen**

The things that look like grayish-green dead leaves growing on the rocks before you are lichens. Lichens are pioneers. They are the first plants to cover bare earth and rock. A lichen is a combination of two plants, algae and fungus. The fungus absorbs and stores water, which the algae combine with sunlight to make food for both plants. The fungus produces an acid that eats into the rock on which it grows. This acid helps to crumble the rock into fine particles. This is one of the first steps to soil formation.

### **Stop 14– Boulder field**

Glaciers moved through the region—some as recently as 17,000 years ago—which formed some of the area's lasting features in the form of its many lakes and famous mountain notches. Originating from the rock cliffs above you, these boulder fields are also a result of glacial activity, wherein they were carried down the slope of this mountain. This location is dominantly of the rock type quartz symite. Like granite, it is an igneous rock, being formed from magma and lava.

### **Stop 15– 1940's tree stumps**

The stumps you see here are remains of timber sales from the early 1940s. The trees around you demonstrate how trees are truly a renewable resource. Timber harvesting creates young trees (known as early successional forests) which help to provide a variety of habitats for songbirds, migratory birds such as Woodcock, large and small mammals such as deer, bear, and moose.

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