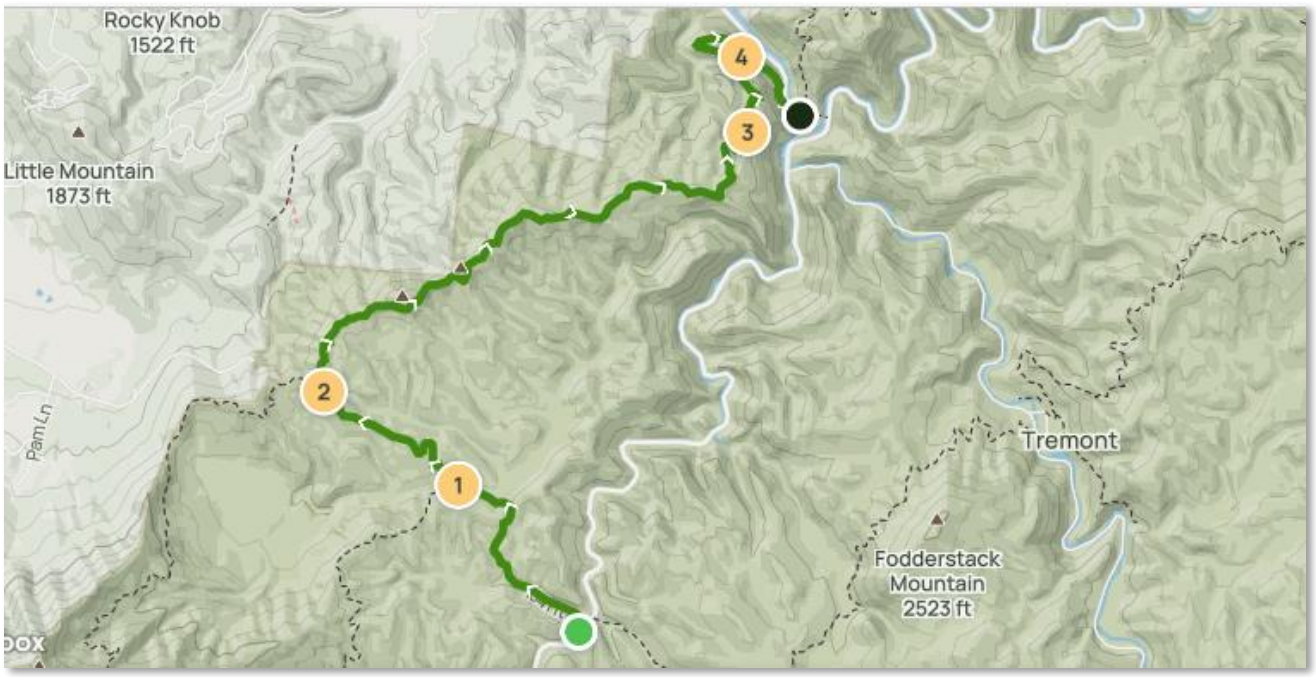
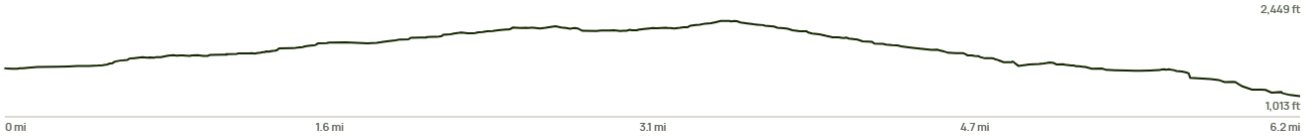
Schoolhouse Gap to the Townsend Wye
Point-to-Point Hike
Schoolhouse Gap & Chestnut Top Trails

Trail Map



Elevation Profile



Trailhead

You may hike this trail from the Schoolhouse Gap parking pull-off on the Laurel Creek Road, or from the Townsend Wye. If your hike is Point-to-Point, I suggest you begin your hike at the Schoolhouse Gap Trail. Drive the Laurel Creek Road about 4 miles from the Townsend Wye to the Schoolhouse Gap parking area on the right. Hike the Schoolhouse Gap Trail to the Chestnut Top Trailhead, about 2 miles.

If your hike will be Out & Back, and you intend to hike only the Chestnut Top Trail you should start and return to the Towsend Wye.

Waypoints

1) Turkey Pen Ridge Trail junction. Just past this trail junction another trail breaks off to the left and passes through a horse gate. This is the trail to White Oak Sinks.
2) Chestnut Top Trail junction with the School House Gap Trail. Turn right on the Chestnut Top Trail.
3) Can this tree live?
4) What's the story about this tree?

Hike Description

Begin your hike on the Schoolhouse Gap Trail that follows Spence Creek to Dorsey gap and then on to Schoolhouse Gap. When originally built in the 1840's by Dr. Isac Anderson, President of Maryville College using Cherokee Indian labor, the road ran from Schoolhouse Gap, then up the Bote Mountain Trail to Spence Field. A bit over a mile into your hike you will pass two trail junctions. The first, the Turkeypen Ridge Trail comes in on your left at Dorsey Gap. The second trail junction, just a few yards beyond the Turkeypen Ridge Trail junction, is not marked and is identifiable only by what I call a "horse barrier" to block horses from taking the trail. This is a limited access trail, both in winter, and during wildflower season in the spring. The winter restriction is to protect bats hibernating in the caves at the bottom of Whiteoak Sinks from being disturbed, causing them to leave the shelter of the caves and go in search of food. The concern here is *White Nose Disease*. When the bat hibernation is interrupted, they leave the cave in search of food. Since there is none, they die. In the spring, the restricted access is to give volunteer staff the sufficient manpower to prevent wildflower vandalism by those who believe they have the right to pick anything they want. If you are interested in hiking to Whiteoak Sinks, you may want to download the park guide.

Having climbed the Schoolhouse Gap Trail, you are now ready to begin the Chestnut Top Trail to the Townsend Wye. If you were to continue on the Schoolhouse Gap Trail to the left, you would soon be at the park boundary and the Scott Mountain Trail, in Schoolhouse Gap.

After you make the turn onto Chestnut Top Trail you will begin a steady but gentle climb for the next 1.5 miles. At that point you have reached 2,357± feet, the high point of your hike. It's downhill from there.

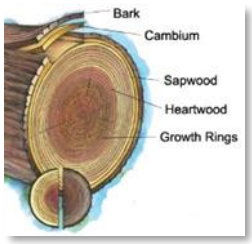
On your climb, while hiking along the ridge to your left, you will pass below the 2,416-foot peak of Chestnut Top Mountain. To your right (East & Southeast) you will see Bote Mountain with Thunderhead, Rocky Top, and the Appalachian Trail Ridge on the horizon. You may also see Kuwohi (formerly Clingmans Dome) in the distance.

Continuing downhill, the trail will turn to the left through a small gap in the ridge and swing to the north on a steeper decent. In less than a half mile you will come to the hollow tree in the photo (I hope it is still here for what it reveals). This tree was here the first time I hiked this trail in the early 70's. Even damaged as badly as it is, it is still *living*.

But *<u>what</u>* do I mean by "living"? My hiking companion and friend, Ron Williams, is pointing to where the inside of the tree once was. This void extends well up the trunk. How can a tree be alive when there is nothing inside its trunk? Well, try this. The inside "trunk" of a most trees, is *dead*. Let's look at the components of tree trunks using the illustration on the next page:

- **Outer Bark**, the tree's protection from the elements.
- **Inner Bark**, called the "phloem" (pronounced flo em). The food for the tree passes through this thin, short lived layer of cells. At the end of the growing season these cells die and become part of the *outer bark*.
- **Cambium Cell Layer** is the part of the trunk that does the "growing". It annually produces *<u>new bark</u>* and *<u>new wood</u>* in response to hormones that pass down through the *<u>inner bark</u>* (the *phloem*) with food from the leaves.
- **Sapwood** is the tree's pipeline for water moving up to the leaves. Sapwood is new wood. As newer rings of sapwood are laid down, inner cells lose their vitality and turn to heartwood.
- **Heartwood** is the central, supporting pillar of the tree. Although dead, it will not decay or lose strength while the outer layers are intact.

And therein lies the problem for this tree. The *heartwood*, or certainly much of it, is gone. The most structurally important *heartwood*, at the base of the tree, has rotted away rendering this tree vulnerable to high winds and impact from other falling trees.



So, how is it that this badly damaged tree is still living, still standing? There is no outer bark covering the hole to provide protection. As a result, the heartwood has rotted away. So, what *is* still living? The cambium cell layer that continues, every growing season, to produce new inner bark and new sapwood. At the end of the growing season the outer layer of phloem becomes new outer bark, and the inner layer of the phloem becomes new sapwood. If you examine the inside perimeter of the opening Ron is point to, you will see that the newly laid down bark has formed a "scar" that is protecting the new growth. Over time, if the tree continues to live, the scar will actually begin to reduce the size of the opening. The photo to the left offers a better view of this process. The center of this tree is also dead and rotting, but it is still intact. The important thing to see here is how the bark is continuing to grow and close the opening. The bark immediately around the opening looks like the bark on a very young tree of this species. Why? Because this small area of bark is *only as old as the damage on the tree*.

There is far more to *creation* than simply the existence of trees. Within trees (or anything else that God has created) are all of the unique elements of what was created. Not just *do* trees grow, but *how* do they grow? Not just *where* they grow, but *why* do they grow where they grow? Not just Oak trees, Maple trees, and Pine trees, but *how many different* Oak, Maple, and Pine trees? What role does *each tree play* in its environment? What other created insect, bird or animal, in Gods plan of creation *depends* on that tree, in that environment? God has hidden none of the answers to these, and many more, questions, that He has also put before us. All we have to do is look for them. We have to, in the words of Christian scientist Johannes Kepler, try to "*think God's thoughts after Him*"[1].

As you leave the damaged tree (I hope it is still there) you are a bit less than a mile from the end of the trail at the Townsend Wye.

Talking about trees, there is one other interesting picture (well, interesting to me) that I want to share with you.

On a previous hike across the Chestnut Top Trail, many years ago, I came across this pine log that had fallen beside the trail on the decent to the Townsend Wye. It has long since disappeared, probably rotted away, but using the photo I took, it still has much to tell us.

The first thing you to notice is the growth rings. Each ring indicates a year of growth. With the center of the tree, the heartwood gone, we are not able to accurately age this tree. Nonetheless, we are able to see how it grew and confirm that it is a pine log. That's where the "fangs" or "teeth" protruding into the rotted-out center of the log come to our attention.

Before I go any further, I want to show you another photo. This picture is of a very young pine tree, only a few years old. The photo was taken early in the spring. What you see is the beginning of new growth for the year. Since last fall, and all winter long, this new growth was in the form of five "buds" at the very top of the tree. One bud in the center and the other four buds arranged slightly below and around it. These five buds became five newly formed "candles" as the tree began to put on growth in the new year.

By early summer each of the five candles will have grown as much as a foot long, or longer. The candle that came from the bud in the center will grow straight up and will add to the height, the "trunk" of the growing tree. The other four which have come from the buds surrounding the bud in the center will become horizontal and parallel to the ground, forming a new "swirl" of four branches around the trunk of the tree at the base of this year's new growth.

Important: Keep this in mind. Pine tree branches form at the top of the tree (or at the end of existing limbs) at the start of each growing season.

Now, let's combine this with what we have already learned about how trees grow. Specifically Outer Bark, Inner Bark, Cambium Cell Layer, Sap Wood, and Heart Wood. The fact that we don't see anything on this new growth that looks like bark is also important. The bark we are accustomed to seeing on trees has been there for many years. Every year more is added when the Cambium Cell Layer for that year dies. The inside of the layer is added to the Sap Wood and the outside of the layer is added to the inside of the Bark layer. Over time, as the tree grows, its diameter gets larger and larger. To accommodate this increasing diameter, the bark must stretch. But, since the bark is no longer living, it is not growing, it will begin to pull apart as it becomes thicker and thicker with each year of growth. As that happens, the bark will begin to take on the appearance we are accustomed to seeing. It will develop splits, groves, plates, and fractures.

Now, back to the "fangs" or "teeth" protruding into the rotted-out center of the log. What is the diameter of a pine tree when the branches are first formed? If you said, very small…perhaps as big around as your finger, you are right. So, looking into our hollow log, how far apart are the very beginning of these branches when they began to form; the very first year of their existence? Allowing the rotting of small elements of the log, they are about as far apart as the diameter of your finger! If we were able to see the full length of this log, all of the branches would have begun in the same relative position. It makes no difference how big the tree has grown. All of its branches begin in the same relative position.

Now, in closing, one final point, which unfortunately cannot be illustrated. If a branch dies and falls from the tree (or is cut from the tree) future growth of the tree will completely surround the branch remnant. That's why boards cut from old pine trees sometime have no knots. It is the branch nodes that form the knots. No branches, no knots.

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[1] In the 17th century, mathematician and astronomer Johannes Kepler, in explaining his thought process in his work, said that he believed that *since God is rational, the universe must be as well*. Because humans are made in God's image, he said, we can, "*think God's thoughts after Him*" to guide us in understanding His work in creating all that we see. In other words, understanding the universe is possible if we focus our attention on the clues God has left behind.