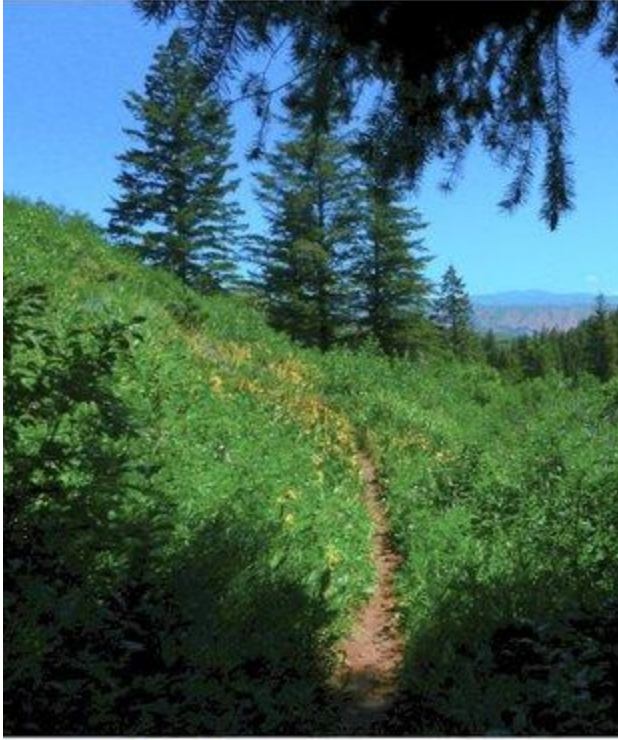




Now some wild flower shots.



Farther along the trail



And the OG Doug Fir - not too much to look at, but satisfying in ways I'll explain.



The Doug Firs are not large in diameter. The big ones are 8 to 11 feet around. So there wasn't much point in taking photos up close. Heights are a little more impressive.

I measured Doug Firs to heights of 110.0, 114.5, 127.0, 133.8, 108.0, 116.0, 112.0, 113.0, 109.0, 105.0, 127.2, 111.0, 113.5, and 138.6 feet.

There are plenty of firs between 90 and 110 feet, a fair number between 111 and 115, and a small number between 116 and 125 feet. I found 3 over 125, as listed above.



One more trail shot showing the Gibson Jack Trail.



Robert T. Leverett

**Boogerman Pine and Sag Branch
Tuliptree, GSMNP update 7-11-2011**

by Will Blozan » Sun Jul 10, 2011 6:49 pm

I met up with new ENTS member Brian Beduhn today to remeasure the Boogerman Pine, Sag Branch Tuliptree and several other trees. We found "The Boog" in good shape and had a 28' pole along to help measure in the thick undergrowth. This turned out to be an essential item due to the flush of new undergrowth from the dead hemlocks.

Here is the top as seen today- where is the highest point?



Here it is! (and it's NOT the tallest looking point- the tuft of fluff at the point of the arrow)

With careful setup I was able to get 188.7' which is basically the same as the 2009 measure of 188.8' by John Eichholtz. So no news there.

We next went to the Sag Branch Tuliptree which does have some news. It has dropped a large chunk of the crown but otherwise looks great- although the leaves looked a bit puny. We tried and tried to get a good height but couldn't break 162' due to thick growth. We need to go back in the winter.



Brian and the beast



Sag Branch break



Fallen carnage

We next stopped at the National Champion cinnamon clethra. This tree has not changed dimensions since first measure in 1996. I did get a slightly lower height this time probably due to my former laser shooting long. It was formerly listed as 33.1' but now is 32.1'.

Nearby we remeasured the tallest witch-hazel at 51.4' with the Nikon. I think I had it over 53' before.

Will Blozan



National Champ clethra trunk

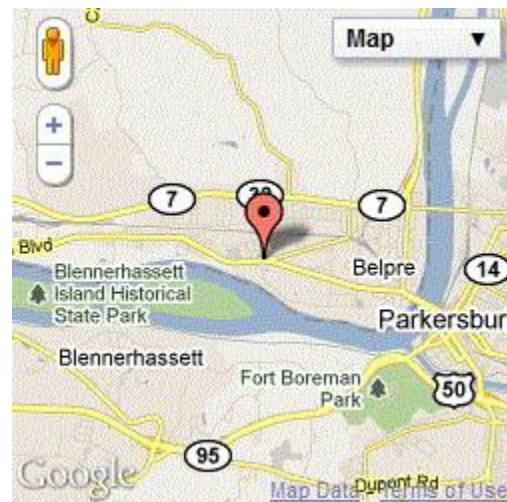


Brian and clethra for scale

[Howe's Grove Roadside Park, OH](#)

by tsharp » Mon Jul 11, 2011 11:28 am

Leaving Parkersburg, WV and heading west on old US 50, crossing the Ohio River to Belpre, Ohio there is a 3 mile up hill grade that is barely noticed by motorists. Near the top and on the north side of highway there is a nice grove of trees that must have looked inviting to early travelers. There was a hand pump and a watering trough in existence into the late 1930's. After many years of unofficial use it was given to the State of Ohio in memory of George A. Howe for use as an official roadside park. US 50 has since been rerouted and the small park is now owned/maintained by the City of Belpre.



Driving by one fall day after leaf drop I noticed some knarly crowns and stopped to measure. Certainly no height to speak about but there were a number oaks with personality.

Species measured and listed in descending order by height include:

White Oak, *Q. alba*, 87.1', 15.5'
Yellow-poplar, *L. tulipifera*, 86.5, 10.7
Sycamore, *P. occidentalis*, 81.5, 11.8
White ash, *F. americana*, 81.2, 7.7
Black Oak, *Q. velutina*, 77.0, 14.6; 75.8, 13.9; 65.0, 12.2; 64.4, 14.1
Pin Oak, *Q. palustris*, 74.0, 8.1
Red Gum, *L. styraciflua*, 73.3, 5.7
Red Maple, *A. rubrum* var. *trilobum*, 70.9, 8.0
Honey locust, *G. tricanthos*, 61.4, 7.6
Black Maple, *A. nigrum*, 56.7, 8.0
RI 10 = 75.0', GI 10 = 9.5'

Measured 11/4/2010 with an later stop on 6/9/2011 to verify the Red Maple and discovered the Sugar Maple I had measured was a Black Maple. The Pin Oak, Red Gum, and Honey Locust were probably planted along with several other species noticed. The other species measured are more consistent of the original forest cover.

Turner Sharp

[Murphy Preserve, WV Rucker Index](#)

by tsharp » Tue Jul 12, 2011 8:43 pm

The Murphy Preserve consists of two tracts totaling 276 acres owned by the Nature Conservancy and located in Ritchie County, West Virginia. The tracts are known as Murphy - North and Murphy - South. John Fichtner and I took a day to scout Murphy - South last January 19th. This tract is located about three miles south of US 50 on Bunnell Run Road (CR 50/21). The nearest town is Pennsboro. The boundaries are well marked and after we climbed the ridge we discovered a trail system that made a large circle through the tract with a minimum of hill climbing. The ridge tops were mostly Oak- Hickory and not very impressive in girth or height. The hollows were a rich looking cove forest with a scant

understory because of the high deer population in this area. I noted 3 different areas to revisit and measure. On 4/13/2011 I was able to revisit (John could not participate) the tract and measured in a SE facing unnamed hollow with a wet weather stream that drains into Bunnell Run which is a tributary to the Little Kanawha River. The largest trees measured and listed in descending order by height are as follows:

Yellow-poplar, *L. tulipifera*: 141.5', 6.5': 139.2', 7.7" (this second Y-P had clear bole to first limb at 80.4')
White Ash, *F. americana*: 131.5, no legible cbh taken
Bitternut Hickory, *C. cordiformis*: 124.9, 5.7
Northern Red Oak, *Q. rubra*: 121.9, 8.1: 115.1, 10.0
Cucumber-tree, *M. acuminata*: 115.9, 5.5
Scarlet Oak, *Q. coccinea*: 110.4, 7.0
Black walnut, *J. nigra*: 107.8, 4.5'
Beech, *F. americana*: 107.5, 6.3
Sycamore, *P. occidentalis*: 98.8, 4.0
White Oak, *Q. alba*: 92.1, 8.7
Blackgum, *N. sylvatica*: 83.6, 3.0
The RI 10 for this site is 115.2'

I measured enough extra Yellow-poplars for Neil and Bobs' forthcoming paper and measured a total of 31 trees in about 6 hours which for me is super fast but there was no understory and several times I got multiple tree heights from the same spot. The elevation of this hollow ranged from 760' at the property boundary and up to 1020 at ridge top. I don't believe I measured any trees above 900' where the dry site oak/hickory and decreased height started becoming apparent. I have seen reports that cored ages from this site have exceeded 300 years but could not verify that with the Nature Conservancy. The Murphy -North tract is not far away but on other side of the ridge in a different drainage and is mostly ridge top.

The Nature Conservancy acquired this property via a donation in 1967.

Turner Sharp

I saw an Owl's dining room table on this site. A large fallen Red Oak had two skunk and one Opossum skeletons all neatly lined up and picked clean.

The Uintas, WY

by dbhguru » Tue Jul 12, 2011 10:18 pm

Yesterday Monica and I left Pocatello at 9:30AM and headed south. Our route took us over the southern Uintas, a range of the Rockies that is partly in Utah, partly in Colorado, and partly in Wyoming. Most of the range is in Utah. Kings Peak, Utah's highest mountain is in the Uintas. It stands at 13,528 feet.

Our route took us well south of the High Uintas. I'm pretty pooped right now and won't do much reporting, but I'd like share 6 images from the Flaming Gorge area. The first is near Sheep Canyon Geological Loop. Guess what? Yep mountain sheep.



The next image looks down on the Flaming Gorge Reservoir. Note the range of colors.



The area is awash in fascinating, colorful formations. When I get to Durango, I'll do a better job of presenting and describing what we saw. But to sum it up - one dazzling scene after another.





One final image: a look at the road across the southern Uintas we were traveling.



Robert T. Leverett

[Potential National Champion Two-wing Silverbell \(*Halesia diptera*\) tree in Asheville, NC](#)

by Will Blozan » Wed Jul 13, 2011 3:15 pm

On my recent trip to the Smokies with Brian Beduhn I mentioned that my tree service gives me access to thousands of private properties specifically to look at their trees. Over the years this has allowed me to compile a huge amount of urban tree data including many champion or near-champion trees.

Monday was no exception as I was consulting on a gorgeous property in West Asheville that dates to the 1890's. Several impressive exotic trees and off-site natives were present. I noted what looked like a decent asian persimmon from a distance, and after my meeting with the client I went over to check it out.



Bark detail



Fruit



Lower trunk



Leaves

It was not a persimmon but in fact a HUGE two-wing silverbell (*Halesia diptera*). I measured it and it is by far the largest I have ever seen and qualifies as a National Champion. Until this tree, the largest I have seen are the ones at the Biltmore Estate; one of which has been listed as a State Champion. However, the Biltmore tree is a double fusion and not a single tree by any means.



Whole tree

This specimen is 62" (1.57 m) CBH X 67' (20.4 m) tall X 36' (11 m) average spread. LEGIT!

Will Blozan

[Pictures of some trees at my timberland, western Maryland](#)

by gnmcmartin » Wed Jul 13, 2011 9:42 pm

Consider this an appendix to the topic I posted some time ago on buying and managing timberland for pleasure and profit, and to my contributions to Joe's topic on forest economics.

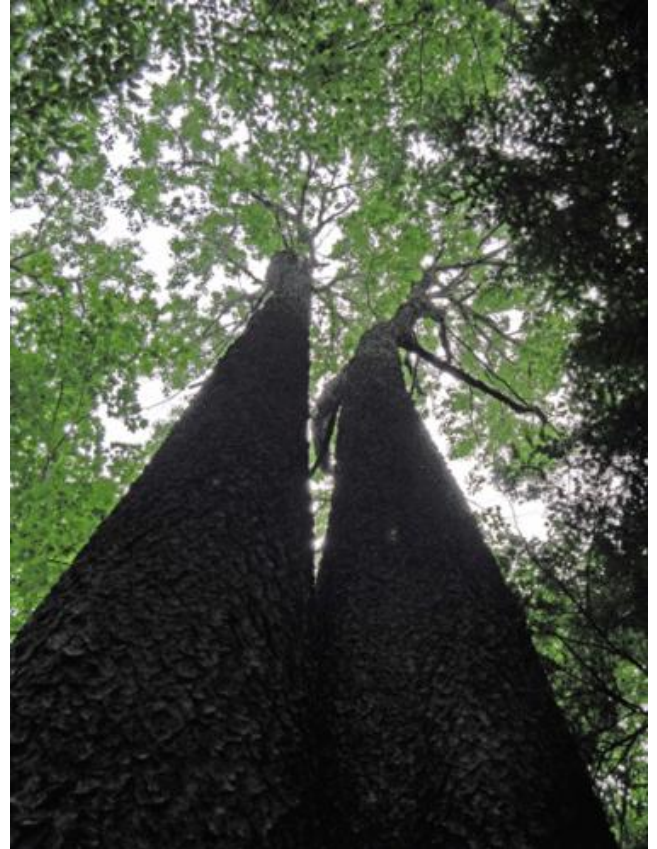
In those topics I talked about the nice black cherry trees growing on my timberland. Here is one of the better ones. See the axe (yellow) for scale:



Here is the same tree looking up the trunk. Black cherry trees of this quality grow on the Allegheny Plateau in parts of PA, MD and WV. This tree is about 100 feet tall, and 32" DBH.



Next is a picture of a very nice double trunked cherry tree. The left hand side is over 30" DBH and is probably top, top veneer quality, but the quality of veneer cannot be verified until the tree is cut and the color and grain evaluated. Anyway, the picture does not do justice to the exceptional beauty of this tree(s). It was difficult to get a good picture because of crowding foliage.



This next picture is a clump of cherry trees that originated as stump sprouts when the stand was logged in the 1930's. Cherry trees of stump sprout origin are almost always fine trees. Rot does not enter from the stump into the sprouted trees. In addition, it is possible to cut (leaving a 3' stump) or girdle one or more of the trees in a clump like this, without having a risk of rot entering the adjacent trees. Note the dead stem to the left that I girdled about 30 years ago. The trees in this clump are about 110 feet tall and each is of probable veneer quality.



timberland. They have benefited from TSI (timber stand improvement) thinning. This one is 100 feet tall and about 32" DBH.

Here is another, not so large, but beautifully straight with a well-balanced crown:



Also on my timberland are nice stands of tuliptree-- nothing like those Will has found. They average about 110 feet tall, but grow in cathedral-like stands of well formed trees. My favorite, however, is a group I call "The Organ Pipes."



I am especially fond of forest grown sugar maple trees. There are some very nice ones growing on my



Finally, the road into my timberland with the rhododendron in bloom. The trees in this picture are poor compared to those in the pictures above. They are here growing on a Dekalb Channery Loam with a SW exposure, a marginal class III site. The trees in the other pictures are growing on Gilpin Channery Loam, good class II sites.



The heights of specific individual trees are estimates. But they are based on two kinds of data. First, I last did some selective silvicultural harvesting 5 years ago. At that time I measured selected trees on the ground after felling. Next, I have measured a few trees with my Nikon 440. I have found that the heights of the best trees are rather consistent--there are not any "outliers," or individual trees much taller than others on similar sites. For that reason, I have not been highly motivated to spend much time measuring my trees. The stand is essentially even-aged stand, with some "cull" trees significantly older, and some trees that were small then the clearcut was done in the 30's, and which survived the destructive chaos of the typical logging of the time.

The diameters many of the trees are somewhat larger than they would have been if they were growing in unthinned stands. I have been managing this timberstand for 36 years so far, and have thinned it 4 times. But the diameters I have quoted are for the trees pictured, which are among the larger ones. On the timberland there are about 250 high quality cherry trees in the range of 28 to 34" DBH. But there are approximately 2,500 high quality cherry trees on the timberland. A majority of these are between 16 to 20" DBH. Tall and straight, and just as tall as the larger ones.

The diameter of any individual tree relative to its age is mostly a function of its crown size. The TSI thinning I have done has given the best trees more space to develop good sized, well-balanced crowns. In areas where there are many high quality trees, I have been reluctant to thin as many out as I would in areas where there are fewer really excellent trees. I probably would have more extremely valuable trees if I had thinned some areas a bit more aggressively.

But, on the other hand, I have a strong aesthetic preference for stands with very tall straight trees. My project forester thinks I should always thin down to a basal area of 75 square feet per acre, but I just can't bring myself to do that. I had extensive conversations with David Marquis at the NE USDA forest experiment station, which has done research of black cherry silviculture, and I am convinced that my approach is a good one. He believes that on sites like mine, productive stands of black cherry can carry a basal area of 140 feet.

It is absolutely astounding how my timberland has responded and changed over the years, and how much it has benefited from my work. Yes, I would like to see how this forest could develop over the next 100 years or "forever," and keep working to do what I can to enhance it. But, alas, our tenure here is all too short!

When I first bought the timberland and did my first TSI, the trees in the pictures here were nothing I even noticed, with the exception of the two sugar maples.

They have been special from the start. But the cherry trees I pictured here--I have no recollection of them from my first go-through doing TSI.

Obviously, I favored them, but at that time they were nothing I even took special note of. But now!!!

The black cherry on my property, on the very best sites, I would guess have the potential to grow to 120, but maybe not much more. If my memory is any good on this --and I can't swear that it is--the ones I cut 5 years ago were growing about 5 to 7 inches in height per year. But the growth of black cherry slows a bit more than some other species after age 80, and mine are getting close to that.

On my timberland the trees with the greatest height growth potential are eastern hemlock--if the adelgids don't get them, white pine, and Norway spruce. I would guess that each of these could grow over 140 easily, and perhaps 150 or more. One might think that the tuliptree could be among the tallest, but the site index (50 year height growth) for my tuliptrees is just a bit over 90 feet. Those that Will has found I would guess have grown something like 140 feet in 50 years, and in one or two cases possibly a bit more. I would think my tuliptrees would top out somewhere around 130 feet--maybe as much as 140. But they can be long lived and grow to very large diameters on my timberland.

Perhaps the native red spruce could top 140 eventually--they are long lived and keep on adding height to advanced ages. But right now the tallest is probably not much over 90 feet.

Gaines McMartin

Birkhead Mountains Wilderness, NC

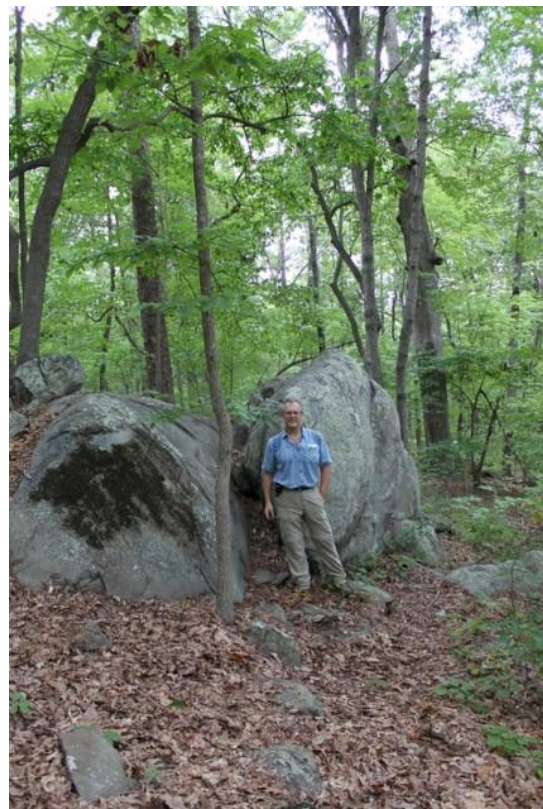
by jamesrobertsmith » Fri Jul 15, 2011 7:28 pm

To test out my knee since the surgery, I decided to go hike in the Birkhead Mountains Wilderness which is a mere 60 miles from my house. They're considered the oldest mountain range in North America and are just little hills, actually. I figured it would be easy hiking and I'd be able to find some solitude in the woods. I was surprised to find that a lot of the forest in there is quite beautiful, despite not being very old - especially in the steep little valleys and bottomlands--tons and tons and tons of hardwoods, much of it edging toward maturity.

Here are some images: First is one of the videos I took after I'd passed through scrubby pines and into hardwoods. I don't know what the bird call is, but I was thinking of "Cheeseburger, cheeseburger, cheeseburger" as it sang.

<http://www.youtube.com/watch?v=0qLq7FIWDt4>

<http://www.youtube.com/watch?v=DIPxCvUUWCA&NR=1>





isolated pools. I found that the pools were full of leopard frogs, many of whom were hiding under stones the way you expect salamanders to do. I saw no salamanders at all. Some small fish in the deepest pools. I saw one white-tailed deer and one indigo snake. That was the first indigo snake I've seen in years.

James Robert Smith

[Dinosaur National Monument, CO](#)

by dbhguru » Fri Jul 15, 2011 6:38 pm

Well, here is the next post in the series - Dinosaur National Monument.

It is not news that there are countless scenic places to see in the American West. Scenery is what the West is all about for me. I relate to the open spaces, the snowcapped mountains, and the colorful canyons. One need not visit the big name places to experience outstanding scenery. You are treated to exceptional vistas along major highways and Interstates. Still, icons like Yosemite, Yellowstone, Crater Lake, Grand Teton, Glacier, and Grand Canyon NPs legitimately remain at the top of the list. Extend that list a little and you can add Bryce Canyon, Zion Canyon, Canyon Lands, Mount Rainier, and Olympic NPs. They and other parks seasonally vie for public attention.

As a prime landscape feature, most of us enjoy the West's many canyons and gorges. They are certainly among the most dramatic of scenic wonders. They accentuate the vertical. It can be electrifying to walk up to a canyon rim and stare down into an abyss. Add color and variety of form, and canyons become a scenic staple. As to be expected, the incomparable Grand Canyon heads most lists. Utah's colorful entries follow the Grand; however, one place that can easily be missed in the canyon competition is Dinosaur National Monument in Utah and Colorado. The Monument is located in the eastern end of the Uinta Mountains, an arid landscape of spectacular canyons, colorful rock formations, and of course, dinosaur fossils. DNM is one of Monica's and my



I also peeled about ten ticks off of me during and after the hike. The place is crawling with deer ticks, but there's considerable understory, so I don't think the deer herd is out of control. There appears to be trees of all ages working their ways up.

The creeks were really low. I'd heard that there is a drought in that part of NC, so it's obviously true. The creeks were either barely trickling or dry with

favorite places. This trip report covers our all too brief visit.

<http://www.nps.gov/dino/planyourvisit/upload/DINOmap1new.pdf>

DNM cover 210,000 acres, and is mostly in northwestern Colorado. It includes the confluence of the Green and Yampa Rivers, a spectacular site chronicled by none other than John Wesley Powell, of Grand Canyon fame. The Green is the principal architect of the canyon country, and rightly so. This 780-mile long river heads at a glacier in Wyoming's Wind River Mountains. Today, the Green is considered a tributary of the Colorado River, something of a demotion, since the Green was once considered the main channel, and the part of the Colorado above the confluence was known as the Grand River. Politicians decreed that it be otherwise. When canyons and white water rafting is thought of, the Colorado immediately comes to mind. Yet, independent of the Colorado, the Green River is a first class white water river and sculptor of canyons of the most exquisite colors and forms. For example, the Green is responsible for the prominent Flaming Gorge, named by Powell.

In DNM, the Green is joined by the Yampa to form a maze of canyons that rival the nation's most scenic offerings, yet despite dizzying depths approaching 3,000 feet, the DNM gorges are hardly known by the traveling public. On our next visit, we will concentrate on the canyons, but regrettably didn't have the time this visit.

Although, it is not visually apparent from the landforms, DNM is located in the Uinta Mountains, a range of the Rockies. The Uintas are the only major range of the Rockies that is aligned on an east-west axis, and boasts around 25 peaks over 13,000 feet. The Uintas are seen from Interstate 80 near Green River and west as a long line of snowcapped summits to the South, one of which is Utah's highest summit, Kings Peak, at 13,528 feet. As a product of this alpine view of the Uintas, one expects a mountain climate for DNM, but in contrast, the climate is actually quite arid. About 11 inches of precipitation fall annually. Vegetation is characteristic of Colorado high desert regions, short grasses and sagebrush.

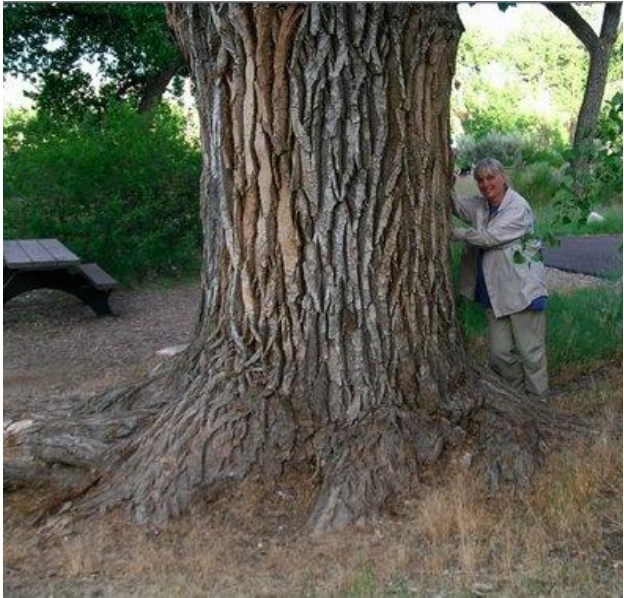
Even so, snowfall measures 41 inches average per year, close to what we receive in Florence, MA. Temperatures in the summer can be scorching and fairly cold in the winter. It is a harsh landscape, yet it supported indigenous cultures thanks to the rivers, and especially the Green, and this is where our story really begins.

Monica was insistent that we revisit DNM, and hoped that we could camp. Her wish was my command. We arrived at DNM very late in the afternoon, and went straight to a small campground that had been recommended to us. Our campsite was on the Green River, and I mean that almost literally. I could throw a stone from our tent and it would splash in the swift flowing, near-flood-stage waters. Our campground is appropriately named the Green River Campground, but beyond its scenic location, it holds a secret. It is located in a stand of old growth cottonwoods. I was not expecting to be treated to old growth in a campground, but there it was.

Our initial two images feature the campground cottonwoods. The first image is at our campsite, and the second is about 70 yards away. I don't know ages, but a couple of stumps indicate ages between 150 and 200 years for many trees in the stand. All the cottonwoods have deeply furrowed bark that "ooze" character. Tree aficionados will understand what I mean.

Along the valleys formed by the Green, you can almost sense the spirit of the mountain men who helped to make the Green famous. Trapping beaver was the objective, and life was very hard. However, another culture, a longer lasting one known as the Fremont people, inhabited the valleys of the Green, and I expect the inhabitants would have made good use of the cottonwoods.

From a big tree perspective, the heights of the cottonwoods are not significant, and most girths are not exceptional – but there are exceptions. The first image is typical of the cottonwoods. The second shows one of the exceptions.



A primary geological feature of DNM is the escarpment, or the sudden uplift seen from the south. The escarpment defines the edge of Monument lands and distinguishes them from the adjacent, rolling shrub lands, as seen from U.S. 40 east of Vernal, Utah. Looking myopically, the sagebrush-dominated swells give little hint of the carved sandstone walls that mark the horizon. Seen from a distance, the colors of the rocks at the escarpment are noticeable, but not overpowering. But once the turn is made from U.S. 40, and the parkland entered, the forms and hues present themselves in great variety. In places, a simple, but pleasing design to the wind and water sculpted surfaces is revealed. Cracks, crevices, smooth surfaces, overhangs, rounded slopes, and more require one develop a specialized vocabulary

for the landforms, otherwise they are just rocks. The next image shows a common riverside form.



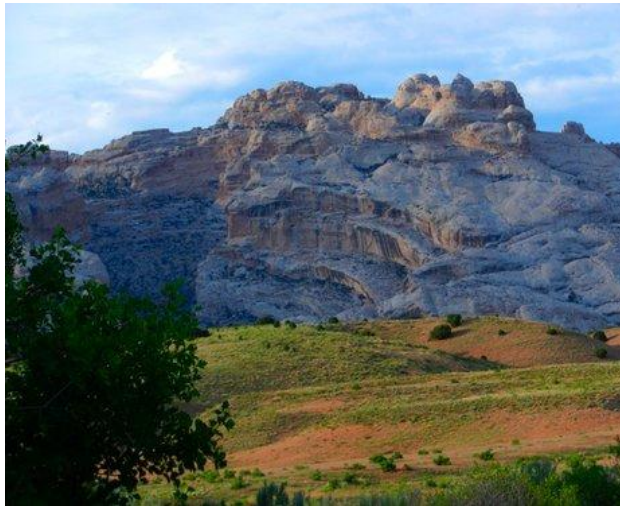
From the above image, least the reader imagine uniform, sand-colored walls, the next image gives a hint of what reveals itself as the geological formations are negotiated. The Earth is not a simple organism. Its creation has endless chapters, many of which are recorded in the rocks, the layers, and the sculpted forms.



Once at our campsite, the scenic cliffs across the Green River presented themselves to us framed by the old cottonwoods. After we set up camp, I began clicking away as Monica prepared dinner.



Let's now take a closer look at the distant wall. Understanding scale is critical to visual appreciation. What is a thin jagged line in the distance grows measurably to dominate the view as white, orange, yellow, and red sandstone walls are approached.



I have accepted the supreme challenge of trying to capture in images and words what makes a place like DNM distinct, if not unique. This is no small undertaking, and I fear beyond me. But I will try.

There is the obvious,, i.e. the dinosaur fossils from the Jurassic, but DNM is much more than its name implies. For one thing, it is generously spacious. I never feel hemmed in. This observation calls for more explanation, which I will defer, but the idea is on the table. For another, DNM is colorful, although not exceptionally so. For a third, it features spectacular rock formations spread over a large

region. The list goes so on. But the land of the Fremont People has qualities that transcend its individual features, and this is what is difficult to show in small images or convey in words. I'm still struggling to find the adjectives to convey the special nature of the land of the dinosaurs. It will take more visits. I think one adjective that sums it up for me is intimate. The landscape is vast, yet accessible. The last image shows a large boulder that we encountered on our nature walk. It displays its attractive sandstone features in an accessible way. Its colors are variegated. It almost invites you to embrace it. Now that would be a feat!



Our schedule was tight and we had a to make a decision. From last year's visit to western Colorado, Monica had wanted to see the Black Canyon of the Gunnison, but couldn't. This year we were determined, so before making our way to Durango, CO, we headed for Black Canyon of the Gunnison NP. We reluctantly cut short our time in DNM, and I think Monica regrets that decision. The variety and intimacy of landforms in DNM have captured her imagination as have few other places. Next year, it will be a prime focus.

 [ENTSDino.doc](#)

Bob Leverett

Brandywine Creek State Park, DE

by George Fieo » Sat Jul 16, 2011 4:45 am

I made several outings to Delaware's 933 acre Brandywine Creek State Park in December of 2010.

The park is located in New Castle County and three miles north of Wilmington and just over a mile east of Winterthur. The Brandywine Creek, also referred to as the Brandywine River, flows south through the park creating two sections, west and east. The site was a former dairy farm in the late 1800's and was owned by the Du Pont family. The state's first two nature preserves are also within the park: Tulip Tree Woods and Freshwater Marsh.

Nearly half of the western portion of the park consists of passive fields and native meadows. Three to four foot high grey stone walls from the dairy farm era line the park's west border, meadows, and encompass Tulip Tree Woods. The other half is in several stages of succession with mature stands in Tulip Tree Woods, on the ridges, and in several small ravines along Brandywine Creek's west bank. Multiflora rose and other invasives choke the understory of woodlands that are in early succession. Several white oak wolf trees were found in this forest type. The largest measured 16'6" x 100.3'.

Tulip Tree Woods is a 24 acre preserve dominated by large 190-220 year old tulip poplars. Twelve specimens were documented with girths of 12' or more with heights over 120' with four surpassing 150'. The tallest of these measured 12'11" x 156.8'. The largest and likely oldest poplar in Tulip Tree Woods is 15'11" x 122.3'. The tallest measured is a slender 6'10" x 157.5' specimen. Common canopy species include black, northern red, and white oak, pignut hickory, and american beech. The largest and tallest white oak in the preserve is an impressive 11'4" x 130'. Two pignut hickories measured 7'2" x 141.2' and 7'4" x 141.7' and are the tallest documented for the park. The crotch of a blowdown has severely damaged the base scarring both sides of the taller specimen. A third or more of it's crown is dead and may not recover. Another park record



Me at the base of a 16'6" x 100.3' white oak.

within the preserve is an 8'5" x 135' american beech.

A few white ash frequent the preserve's northwest corner with the largest and tallest specimen measuring 11'2" x 129.5'. Blackhaw viburnum and flowering dogwood were impressive as well with measurements of 1'2" x 30.3' and 2' x 52.4' respectively.



15'11" x 122.3' Tulip Tree Woods poplar.

A small ravine west of Tulip Tree Woods along the creek's west bank also supports a few 150' tulip poplars and a very impressive black oak. The black oak is a personal best for me and may well be a state height record at 11'7" x 137.2'. Another small ravine to the south and north of Freshwater Marsh supports 9 species of mature trees with an average girth of more than 9' and an average height of 117'. An impressive 10'4" x 104.2' red maple, with crown damage, grows along a small spring at the base of the ravine and a 16' x 127' tulip poplar grows on the northern ridge above the ravine.



Me at the base of an 11'7" x 137.2' black oak.

The portion of the park east of the Brandywine Creek is even more impressive. Human disturbance has been limited over the past 200 years or more due to its steep and rocky terrain. Huge boulders of Wilmington Complex blue rocks, which were formally a volcanic island more than 500 million years ago, are strewn along much of its slope.



Boulder field of Wilmington Complex blue rocks.

Invasives are nearly nonexistent except along the Northern Delaware Greenway Trail, which follows most of the east bank of the creek, and the park's west border with a development. Tulip poplars are larger and taller with a few specimen possibly over 250 years old. The largest poplar measures 19' x 149.1'.

This poplar may not be as old as its size suggest. It receives a constant supply of water from an old spring house less than 20 yards away. Although the tree has balding bark it lacks other old growth characteristics such as large limbs and a gnarly form. Sixty six poplars were documented with dimensions in the 12' x 100' range with fourteen of those at or exceeding 150'.

The tallest tulip poplars grow in a swale on a west facing slope in the southeastern corner of the park.

Two poplars recorded heights over 160'. One at 13'7" x 160.1' and the other at 9'9" x 164.9'. White ash had four specimens with recorded heights over 140', two of which had girths of 11' or more in the same swale as the 160' tulips. The tallest ash measured 11' x 148.7'.



19' x 149.1' Tulip poplar.



An 11' x 148.7' white ash.

Bitternut hickory recorded several specimen over 130'. The tallest measured 6'5" x 147.4'. Chestnut oak and Mountain laurel are common on the steep slopes and ridges along the creeks east bank. The tallest documented chestnut oak is a 6'8" x 127' specimen.



A stand of 200 year old Tulip poplars.

On 12/22/10 I was hiking along the east bank of the Brandywine Creek and heard the flap of a large wing. A Bald eagle was flying low to the water and heading upstream. The creek was frozen solid the week before but in the sun's rays and clear skies had nearly thawed. Mallards and Canadian geese were common on the creek that day and were likely on the eagles menu. Cruising 15' above the water and with a single up-stroke from its powerful wings it perched 40' high on a sycamore limb situated on the west bank. I quickly grabbed my camera from my backpack and slowly headed back upstream 150 yards towards the eagle, taking several photos along the way. As I paralleled the eagle I took a perfect zoomed 40 yard photo of it jumping from the limb into flight. It was a beautiful site and a memory I'll never forget. The cameras batteries were shot and the last two of the three photos I took were not saved to the memory card. So here is an out of focus photo of a Bald eagle in a sycamore tree.



Bald eagle in a sycamore.

I did manage to take a photo of a Witch-hazel in flower on the same day. It must have been a late bloomer.



Witch-hazel flower.

Brandywine Creek State Park Site Index

Species	CBH	Height	Comment
A Basswood	7'11"	105.8'	
A Beech	6'6"	125.7'	
A Beech	8'5"	135'	N 39*48.522' x W 75*34.641'
Bitternut Hickory	7'11"	133.9'	
Bitternut Hickory	6'9"	140'	

Bitternut Hickory	6'5"	147.4'	N 39*48.255'
x W 75*34.097'			
Black Cherry	5'7"	115.6'	
Blackgum	9'9"	81.4'	
Blackgum	5'9"	111.8'	
Blackhaw	1'2"	30.3'	
Black Oak	11'8"	130.5'	
Black Oak	9'	133'	
Black Oak	11'7"	137.2'	
Black Walnut	7'1"	116.5'	
Chestnut Oak	9'10"	119.3'	
Chestnut Oak	6'7"	125.7'	
Chestnut Oak	8'6"	126.9'	
Chestnut Oak	6'8"	127'	
Common Persimmon	3'8"	75.5'	
E Hophornbeam	2'1"	56.6'	
Flowering Dogwood	2'	52.4'	
Mockernut Hickory	6'5"	114'	
N Red Oak	7'8"	139.5'	
N Red Oak	7'7"	140.5'	
N Red Oak	7'3"	140.8'	
Pignut Hickory	9'7"	138.8'	
Pignut Hickory	7'5"	140.5'	
Pignut Hickory	7'2"	141.2'	
Pignut Hickory	7'4"	141.7'	
Red Maple	10'4"	104.2'	
Sassafras	3'10"	90.5'	
Shagbark Hickory	4'1"	102.5'	
Shagbark Hickory	5'3"	113.4'	
Silver Maple	10'9'	99.3'	
Slippery Elm	5'7"	102'	
Sugar Maple	5'4"	97.6'	
Sycamore	18'	96.6'	
Sycamore	5'2"	125.6'	
Tulip Poplar	6'10"	157.5'	
Tulip Poplar	12'2"	158'	
Tulip Poplar	10'2"	159.4'	
Tulip Poplar	13'7"	160.1'	
Tulip Poplar	9'9"	164.9'	
White Ash	6'4"	140.1'	
White Ash	11'4"	142.9'	
White Ash	8'10"	147.4'	
White Ash	9'7"	147.5'	
White Ash	11'	148.7'	
White Oak	11'4"	130'	
White Oak	8'7"	132.2'	
White Oak	8'6"	137.9'	
Witch Hazel	1'7"	34'	

There may be several new state height records but we have very little data from Delaware.

Brandywine Creek State Park 12 x 100 Club

Species	CBH	Height	Comment
Black Oak	12'5"	103.2'	
Black Oak	13'7"	107.6'	
Black Oak	12'3"	115.2'	
Black Oak	12'1"	118.9'	
N Red Oak	12'	105.2'	
N Red Oak	12'	121.7'	
N Red Oak	15'11"	131'	N
39*48.432' x W 75*33.727'			

Note: Tulip Poplar is excluded from this list and will be included in a separate report.

Brandywine Creek State Park Rucker Index

Species	CBH	Height
Tulip Poplar	9'9"	164.9'
White Ash	11'	148.7'
Bitternut Hickory	6'5"	147.4'
Pignut Hickory	7'4"	141.7'
N Red Oak	7'3"	140.8'
White Oak	8'6"	137.9'
Black Oak	11'7"	137.2'
A Beech	8'5"	135'
Chestnut Oak	6'8"	127'
Sycamore	5'2"	125.6'

RI 140.62'

Brandywine Creek State Park may very well be Delaware's superlative site to see large and tall Tulip poplars.

George Fieo

[Brandywine Creek State Park's Tulip Poplars, PA](#)

by George Fieo » Sun Jul 17, 2011 12:53 am

Here is the list of 12' x 100' Tulip poplars for Brandywine Creek State Park along with some photos.



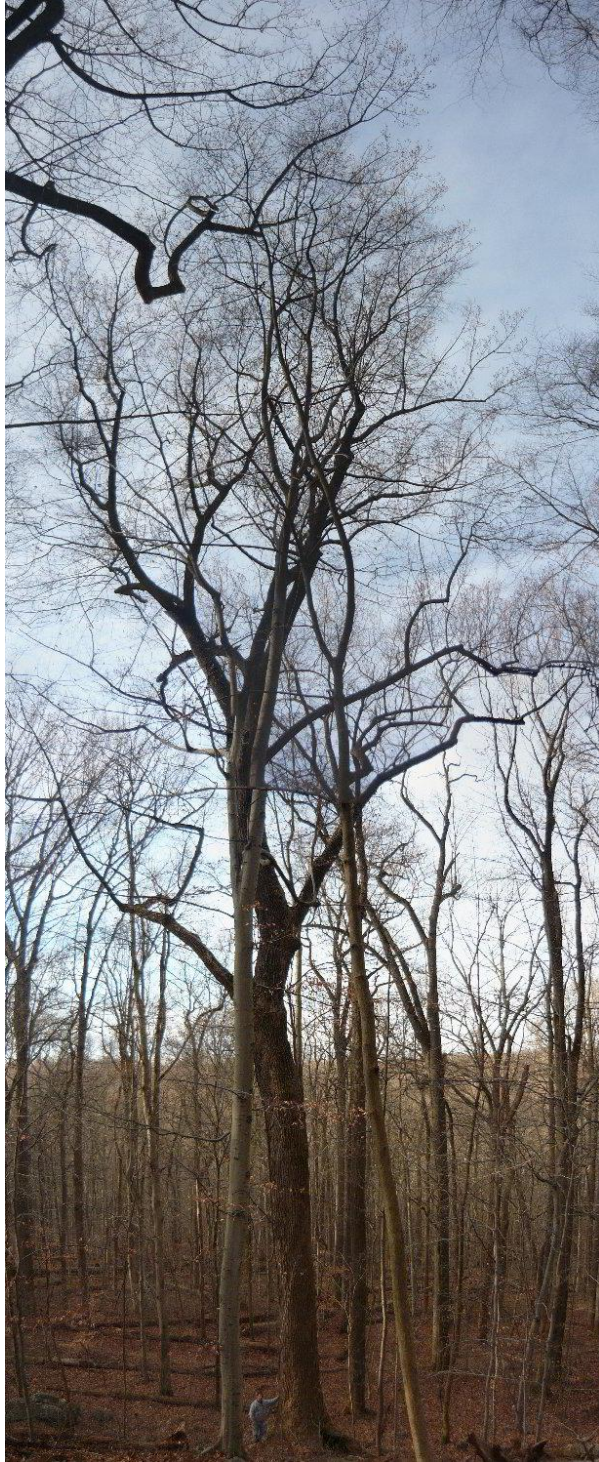
A 12'11" x 156.8' Tulip poplar within Tulip Tree Woods.



A 15'2" x 154.1' Tulip poplar.



Me between two large poplars measuring 14'11" x 148.7' and 13'10" x 150.3'.



A 14'8" x 139.8' Tulip Poplar.



My brother Rob and I in a general forest seen. Notice Rob in the background between some unmeasured tulips.



Me with one of two tulip poplars with girths of 17'3" and more than 140' in height.



The bole of a 19' x 149.1' Tulip poplar.



Rob at the base of the 19' x 149.1' Tulip poplar.

12' x 100' Club		Coordinates
CBH	Height	
15'11"	122.3'	N 39*47.997' x W 75*34.132'
12'4"	125.5'	
16'	127'	
15'3"	127.3'	
12'2"	130.2'	
12'3"	130.4'	
12'8"	131.4'	
12'4"	131.6'	
14'1"	132.2'	
14'8"	134.4'	
13'5"	134.6'	
12'4"	135.2'	
12'2"	135.3'	
13'	135.3'	
13'4"	135.8'	
12'1"	136.9'	
13'8"	137.2'	
13'9"	137.5'	
12'8"	138.1'	
13'7"	138.2'	
12'2"	138.7'	
12'	138.8'	
15'4"	138.8'	
14'9"	138.9'	
14'1"	139.5'	
14'8"	139.8'	N 39*48.011' x W 75*33.980'
12'3"	140'	
14'7"	140.3'	
12'4"	140.5'	
12'5"	140.7'	
13'	140.8'	
17'3"	140.8'	
14'	141.3'	
13'11"	142'	
15'2"	142'	
12'1"	143'	N 39*47.970' x W 75*34.045'
12'	143.2'	
12'7"	143.4'	
13'10"	144.4'	
17'3"	144.8'	
12'5"	144.9'	
12'4"	145.2'	
12'2"	145.3'	
12'6"	145.3'	
14'11"	145.6'	
13'7"	145.7'	
12'1"	145.8'	

13'	146.1'	
12'1"	147.2'	
12'8"	147.3'	
13'8"	147.5'	
12'5"	147.7'	
14'10"	147.8'	
12'1"	148.1'	
14'11"	148.7'	
12'5"	148.9'	
19'	149.1'	N 39*48.642' x W 75*33.756'
13'4"	149.3'	
12'9"	149.5'	
13'	149.5'	

12' x 150' Club

CBH Height

12'3"	150'	
13'10"	150.3'	
12'11"	150.4'	
12'2"	150.5'	
12'2"	152.1'	
13'10"	152.2'	
12'11"	152.6"	
12'10"	153.4'	
12'5"	153.5'	
13'	153.5'	
13'5"	153.7'	
13'9"	154.1'	
15'2"	154.1'	N 39*48.241' x W 75*34.107'
13'5"	156.6'	
12'11"	156.8'	
12'9"	157'	
12'2"	158'	
13'7"	160.1'	

George Fieo

Bear Creek in San Juans, CO

by dbhguru » Sat Jul 16, 2011 11:12 am

Outside of two trails in the Tetons, tree news has been sparse on this western venture. However, our luck may be improving. North of the small town of Dolores in the San Juans, Monica and I stumbled upon a trailhead to Bear Creek. Colorado Blue Spruce loomed tall and we quickly stopped at I went to work.

Girths are slender, between 5 and 8 feet. Here are heights of the Colorado Blues I measured: 129.5, 132.0, 134.0, 116.0, 124.0, 136.5, and 138.5 feet. We'll be returning to Bear Creek on Monday when I can do an adequate job. There is also the promise of some old growth Ponderosas. The 138.5-footer is the tallest tree I've measured so far on this western trip. There appears to be a lot more potential.

Robert T. Leveret

WNTS - Grand Teton National Park - Rendezvous 2011

by Don Bertollette» Sat Jul 16, 2011 4:22 am

Having travelled from Pocatello Idaho to Grand Teton National Park, we (now a party of 6) set up our

tents at Colter Bay campground at Jackson Lake. Camp set up, and with Dale putting together another fine gourmet meal, we migrated through the woods to the shoreline of Colter Bay and beheld the panorama below:



At the shores edge, note the yellow cloudiness...this was pollen that was being blown in clouds out of adjacent trees with gusting winds that preceded afternoon storms.

Focusing closer, we get a preview of tomorrow's destination...



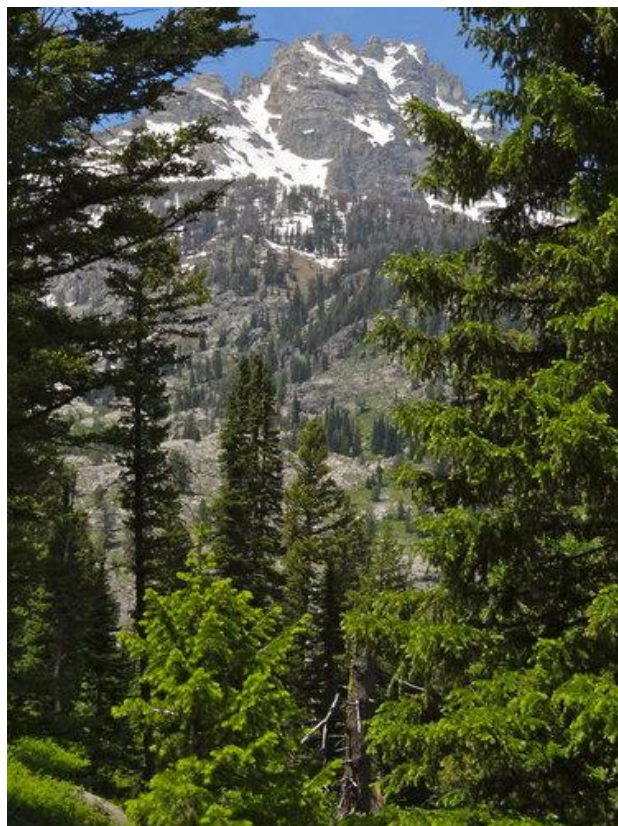
For some, these peaks are the destinations...



For Monica, Bob and I, our destination lies to the left of this view, and well below the snowline...



Some of the views along the way follow...

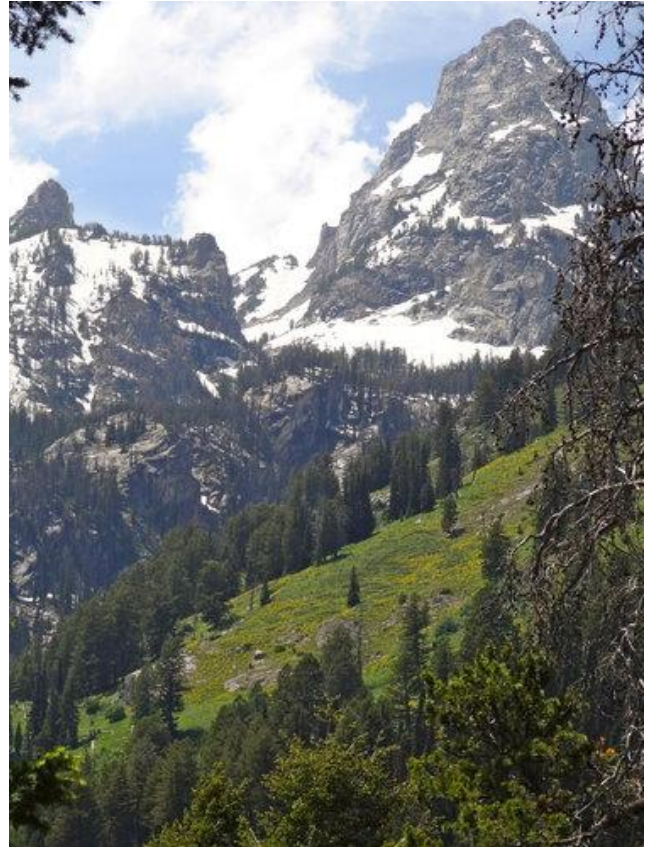


It was here that we began identifying Engleman Spruce that were approaching their maxima for this elevation.

Among the many charismatic megafauna we saw while hiking the Tetons, this yellow-bellied marmot provided the best photo opps...



On the way down, with an afternoon storm rushing us out, we chatted briefly with adventure junkies who'd climbed up the couloir of the Grand Teton (very technical) with Randonee skis, and telemarked down. The following images are successively zoomed in that couloir, but not quite enough to detect their graceful S-ing tracks documenting their several minutes of glory (earned with hours of hiking, climbing)...





Don Bertollette – President WNTS

During a week off, I hiked part of Breakneck Ridge in Hudson Highlands State Park. It was a lovely day and I was just introduced to photosynth, an app for a smartphone that allows instant creation of panoramic pictures. sometimes the pans turn out decently.

below is a picture of the Hudson Highlands with Storm King directly across the river. i almost always am taken aback when i consider these scenes just 60 or less north of NYC.

The peak to the left is a part of Breakneck Ridge. The panoramic distorts things a bit. Part of Breakneck was mined, so there are some dramatic faces to the ridge. I'm hoping I can embed the map....nope. the topography of the Hudson Highlands are cool, esp from the river [did you know the Hudson was a fjord?]

<http://maps.google.com/maps?q=Breakneck+Ridge,+NY&hl=en&ll=41.44234,-73.959446&spn=0.076179,0.143337&sll=37.0625,-95.677068&sspn=41.089062,73.388672&t=p&z=13>

here are a couple of useful links:

http://en.wikipedia.org/wiki/Breakneck_Ridge

and check out the elevation profile 1/2-way down this page:<http://www.nycdayhiking.com/hikes/breaksugar.htm>

Neil Pederson

[Hudson Highlands State Park, NY](#)

by Neil » Sat Jul 16, 2011 9:35 am



Pan overlooking the Hudson River from Breakneck Ridge

Kelsey Tract and Cheoah Hemlock, NC

by eliahd24 » Sat Jul 16, 2011 4:53 pm

Yesterday I had the pleasure of visiting the Kelsey Tract of old growth forest outside of Highlands, NC.

Jess Riddle had given me directions, but I also hooked up with Kyle from the Highlands-Cashiers Land Trust and he ended up leading the tour. It was a wonderful day with temp's in the upper 60's, drizzle, and fog. Sure felt good after a heat index of 110 3 days earlier in Atlanta.

We met at 10am and immediately headed down the steep slope. Our group included some research colleagues from Southern Polytechnic State University who are helping me core and age old growth in Fernbank Forest, along with a few other friends and tree enthusiasts. None but Kyle had ever seen Cheoah in person, so needless to say we were all quite excited.

From the very start, this forest amazed me. A truly primordial feel. Everything was damp and the layer of leaf litter and duff was spongy soft. So many fungi, mosses, lichen, herbs, etc. And fantastically big, twisted, gnarly trees!

Video of our approach:

<http://youtu.be/CPV6U-QYsXk>

It doesn't take long to get to Cheoah and it kind of snuck up on me (or me on it). It's really awe inspiring. Our whole group just got silent as it came into view.

Cheoah on video:

<http://youtu.be/G-GPW91OdPc>

This is the view from the side of the opposite slope- it just dominates:



This picture turned out blurry, but I kinda like it that way:



Kyle informed me that a large tree adjacent to Cheoah had come down last year and finally fell all the way to the ground over this past (harsh) winter. Cheoah now truly stands alone. It's a very healthy

looking tree with lots of green growth from top to bottom. I only saw a few small sprigs of dead branches at the very top (through my rangefinder).

Measuring trees was not my primary goal for this trip, it was more just for the experience of being amongst the last giant hemlock known to exist. I did, however, get a rough height (via SIN method) for Cheoah. It came out to 163.2'. Will climbed this tree within the last year, so I'm sure he did an extremely accurate tape drop at that time as well.



The area surrounding Cheoah (the valley if you will) is loaded with big hemlocks. Kyle showed me a number of big hits from LIDAR on a map he had printed out. I'm sure Jess and Will have combed this area pretty good, but I'd love to come back after leaf drop (but before bitter cold and snow) and do some extensive surveying of big trees. I'd especially like to see how tall the Fraser Magnolias get in this area.

They seem to dominate unlike cucumber magnolia in many other forests of the area



After spending time with Cheoah we bee-lined it straight up the hill to reach the ancient Carolina Hemlock forest on the opposite ridgetop. What a task! Though only about 250 yards away, it was around 400' vertical and solid rhodo's and even thicker doghobble! It really thinned out near the top though and a wonderful elphine forest appeared:



The maples and fraser mag's were about the same height as the mountain laurel! I'm told that this is the oldest (cored) stand of Carolina Hemlock as well.

We saw quite a few up top. Many were fairly healthy, some were sickly and heavily damaged from adelgids, some were completely dead:



So, any takers on a future trip to Cheoah??

Eli Dickerson

Correction posted by Will Blozan (July 18, 2011):

*The last tape drop of the Cheoah was in 2006 at 158.7'. Due to HWA damage I would expect it to not have changed much in height. I last climbed it in 2010 and the top leader was still alive but not doing much. I'm glad you were able to see it and now by default, you have seen the largest and the tallest *Tsuga canadensis* currently known! This tree is a powerhouse of recovery.*

After some time at the top, we bush-whacked back down. One friend trampled some ground bees and got a couple nasty stings, but thankfully we had benadryl on hand and she was not allergic.

It's amazing how fast time flies when you're wandering around massive trees and old growth in an utterly amazed stupor. We easily spent 2.5 hours at the site in what seemed like the blink of an eye.

In closing, I'd like to mention that Kyle is interested in doing some light trail maintenance in fall/winter and I think a small ENTS crew (tarheel ENTS especially) could really help him out in this endeavor.

I know I want to go back and I'll use any excuse.

These are just narrow social trails that the land trust uses and this area is NOT open to the public. It's far too sensitive and special. Kyle and everyone at the land trust were very welcoming and accommodating to me (being a total stranger) and they seem to really appreciate the work ENTS does, including documenting these exceptional forests and treating the hemlocks for those damned horrid adelgids.

Triangle Method Derivation

by M.W.Taylor » Sun Jul 17, 2011 4:36 pm

The attached jpg image is a screen capture of the Triangle Method derivation and instruction. Included are tips for increasing accuracy and convergence using the Triangle Method.

I have also posted this on my website:

<http://www.landmarktrees.net/triangle.html>

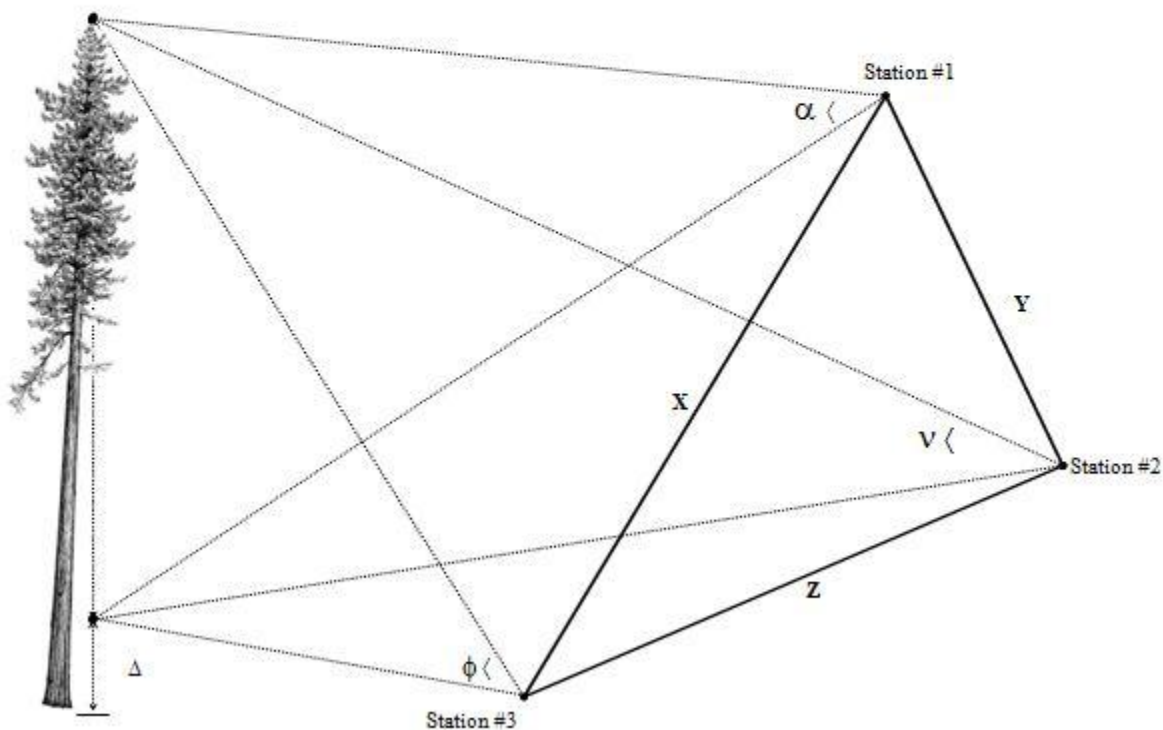
You can download two different version of an Excel spreadsheet Triangle Method Solver at:

<http://www.landmarktrees.net/software.html>

Michael Taylor

Triangle Method

It is possible to measure the height of a tree indirectly without taking any horizontal sweep angles, β_1 & β_2 , which can be difficult to obtain accurately in the field. With this method, find three open views in any space to the tree's top. These three points ideally should be within view of each other to avoid indirect surveys. Once the surveyor has taken the three vertical angles to the tree's top, the slope distance and angle between the three viewing stations is taken as per diagram below. In this situation, we have 3 equations and 3 unknowns to solve for h , β_1 & β_2 .





The next hurdle - the catenary

by M.W.Taylor » Mon Jul 18, 2011 10:21 pm

This method is somewhat unorthodox, probably because a computer is needed to find the solution. Now that we have Pocket PCs and mini laptops, the solution can easily be obtained in the field, almost immediately.

I chose the hyperbolic tangent curve over the parabolic curve for the following reasons:

1) It works better for the Triangle Method due to many of the same measurements being used already, such as the vertical angle between anchor points, "j1" as in the diagram above. This hyperbolic tangent curve requires fewer variables for a solution. Only the pole sag, "h" and elevation angle, "j1" are needed. If elevation difference, "a", can be measured, the solution becomes algebraic, otherwise you will need a computer to solve for the straight-line distance, "X". When using an off-level catenary, "a" is usually difficult to find because part of this side will be inside a hill. Additionally, since a computer is already being used for the Triangle Method....to use it further to solve for the hyperbolic tangent catenary requires no extra equipment which is not already being used.

2) Works for off-level catenary, which is typically what a tree surveyor will use in the field. The parabolic curve breaks down when off-level and the solution becomes a partial differential equation with no likely algebraic solution.

3) No fish scale needed.

4) No need to figure out the unit weight of the tape line or steel cable being used. No force parameters are part of the calculation.

5) More accurate because it models real life instead of being a close approximation.

I posted the catenary solution in its own category and attached a pdf file that shows mathematically that the catenary curve is a hyperbolic function of cosine (or

tangent) and not a force parabola. The force parabola is a close approximation however and very useful.

I believe the main reason old-school surveyors avoided the hyperbolic tangent curve is because the solution is numeric and requires a computer to solve. The pole sag, "h", is easiest to find by use of a measuring rod and level scope.

The parabolic curve is easy to solve for with paper and slide-rule or calculator, but not the hyperbolic curve.

Now the temperature correction is another issue that I have not addressed on this forum yet. I have seen tables in surveyor manuals for this correction, but when using my own tape-line from China, I would prefer to make my own Temperature off-set table, which is unique to them material I am using. I trust my own tables more.

Michael Taylor

[Triangle Method Solver - Measure a tree from 1+ miles away](#)

 by M.W.Taylor » Sun Jul 17, 2011 5:05 pm


The attached documents are two different MS Excel Triangle Method Solvers. You will need to enable macros to allow these Visual Basic programs to work with the spreadsheet. The 2nd version allows for off-level catenary adjustment for those who are using only a tape-line and/or pivot axis adjustment for off-axis transits or forestry lasers. These adjustments will greatly improve the accuracy of the Triangle Method. The instructions on how to use the software are contained within the spreadsheet. I included a 90 foot tree for default #'s. Just change those #'s and input your own, then press Control-S to solver for height.


This technique should be useful in scanning for tall tree tops that are out of range of the typical laser rangefinder. In theory, a surveyor should be able to

measure a tree's height to precision from over 1 mile away using this technique.

Using the same formulas, the surveyor can also backsolve for the distance to the tree. This can be useful for marking the unknown target as a waypoint on a GPS before even seeing the tree.

Michael Taylor

 [Triangle Method - Shareware Ver 1.1.xls](#)
(370.5 KiB)

 [Triangle Method With PVA & Catenary Ver 1.1.xls](#)
(708.5 KiB)

[Off-Level Catenary Formula For A Sagging Tape-Line](#)

 by M.W.Taylor » Sun Jul 17, 2011 5:32 pm

For those using a fiberglass laminate or steel cable tape-line for measuring long distances, you may consider using catenary correction to convert the tape-line's sagging arc-length into a straight-line distance. All that is required to make this calculation is a measuring rod (to find the "Pole Sag") and a transit (already being used to measure the vertical angle to the tree's top). This equation comes from Ruud v Gessel April 2001. I attached the derivation PDF file by the author.

Gessel proves mathmatically that a free hanging catenary is not a true parabola nor a function of the unit weight acting on the cable that forms the catenary. The parabolic approximation is close though, however it requires use of fish scales to keep the tension constant on the measuring line and also the line must be relatively level...which is not going to happen when measuring a tree in a hilly environment.

Here is an easier way and you don't need a fish scale, nor a level environment. Just let the tape-line hang

freely.. Do not stretch it...fiber glass will stretch a few inches per 100' if you really tug hard on it.

If you stretch your tape-line, you will also permanently deform it to take measurement on the long side. Never stretch a tape-line. Just use the catenary correction.

I attached an Excel spreadsheet version that uses Visual Basic to solve for the straight-line distance of any off-level catenary. There is a default example for a real off-level catenary. Just input your own numbers and press Control-S to solve.

In the attached PDF, Gessel derives an important formula for the off-level catenary, which are expected for measuring trees in real life. This is the only practical formula I have found that allows me to find the straight-line distance of an off-level catenary..i.e. a fiberglass or steel cable suspended freely between two points of unequal height. All I need is a measuring rod to find the pole sag...see attached. Super easy, fast and accurate.

Attachments

 [catenary.pdf](#) (85.84 KiB)

 [catenary solver.xls](#) (316 KiB)

[Engineer Mountain, CO](#)

by dbhguru » Sat Jul 16, 2011 11:27 pm

Today Monica and I went to Coal Bank Pass and started a trek up to the tundra on 12,972-foot Engineer Mountain. The views from the trail are commanding. Here is an example, looking over into the West Needle Mountains.



At the edge of the tundra, the summit of Engineer still looms 1,300 feet above us.



Wild flowers were prolific. Indian Paintbrush was deep red.



But what about the trees? Oh yes, I'll present 3 images of the Englemann Spruce and then cite some numbers.



The Englemanns at Coal Bank Pass and upon to the side of Engineer Mountain are off the charts statistically speaking. I measured 42 Englemanns over 100 feet in height, and could have measured 42 more in that class. However, the real story is height combined with altitude. I measured 4 Englemanns over 120 feet at altitudes above 11,000 feet. Here are some numbers along with altitudes.

Tree #	Height	Altitude
1	121.0	11,012
2	120.0	11,030
3	126.0	11,040
4	123.0	11,142

Altogether, I measured 10 Englemanns over 120 feet. If I included 120s that I measured last year, the number would have been 15, all above 10,500 feet elevation.

The 123-footer at 11,142 feet is a Rocky Mtn record for above 11,100 feet. The 126-footer is a Rocky Mtn record for 11,000 feet or more. At 11,505 feet, I measured a 107-footer. It is the only tree over 100 feet in height that I've measured at an altitude of 11,500 feet or more.

The San Juan range of the Rockies is a very tree significant area. Here are 3 more images from yesterday. The first shows the West Needle mountains, which lie east of Coal Bank Pass. The 2nd