

A photograph of a forest with a large tree trunk in the foreground and a person standing next to it for scale. The person is wearing a black t-shirt and blue jeans, looking up at the tree. The forest is filled with tall, thin trees and dense green foliage. The lighting is bright, suggesting a sunny day.

# eNTS

The Magazine of the  
Native Tree Society  
Volume 2, Number 10,  
October 2012



## **eNTS: The Magazine of the Native Tree Society**

The Native Tree Society and the Eastern Native Tree Society  
<http://www.nativetreesociety.org>  
<http://www.ents-bbs.org>

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### **Mission Statement:**

The Native Tree Society (NTS) is a cyberspace interest groups devoted to the documentation and celebration of trees and forests of the eastern North America and around the world, through art, poetry, music, mythology, science, medicine, wood crafts, and collecting research data for a variety of purposes. This is a discussion forum for people who view trees and forests not just as a crop to be harvested, but also as something of value in their own right. Membership in the Native Tree Society and its regional chapters is free and open to anyone with an interest in trees living anywhere in the world.

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Official membership in the NTS is FREE. Simply sign up for membership in our bulletins board at <http://www.ents-bbs.org> Submissions to the website or magazine in terms of information, art, etc. should be made directly to Ed Frank at: [edfrank@nativetreesociety.org](mailto:edfrank@nativetreesociety.org) The *eNTS: the Magazine of the Native Tree Society* is provided as a free download in Adobe® PDF format through the NTS website and the NTS BBS. The editorial staff of *eNTS: the Magazine of Native Tree Society* are solely responsible for its content.

*COVER: World's tallest sugar pine at 264 feet, CA. Photo by Michael Taylor, 2012.*

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I want to remind the readers of this magazine that the articles presented here are only a part, usually just the beginning, of the discussions being held on our BBS at <http://www.ents-bbs.org> . The full discussion can be read by clicking on the link embedded in the title of each individual article. - Edward Frank

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## Editor's Corner

By Edward Frank

Each month I try to figure out what to post as an editorial introduction to that month's issue. It is difficult because I have lived with the months worth of posts to the BBs. I read them all and respond to many of them. Sometimes an event or find really stands out and that can be the subject of the editorial. Sometimes it is some organizational structure discussion or change I want to emphasize. I admit at times I have simply chosen one of Robert Leverett's discussions of the past and future of the NTS and use that as a de facto guest editorial. That is what I originally intended to do this month, with his overview of the big MTSF Advanced Tree Measuring workshop. But, events overtook that intention.

We had a fantastic Advanced Tree Measuring Workshop conducted by Robert Leverett at Mohawk Trail State Forest <http://www.ents-bbs.org/viewtopic.php?f=26&t=4592>

We had poetry by Ryan leClair – The Moosewood Tree <http://www.ents-bbs.org/viewtopic.php?f=317&t=4495>

Tom Howard Posted a series of reports from upstate New York: <http://www.ents-bbs.org/viewtopic.php?f=105&t=4595>

There was a series on the Evaluation of various types of laser rangefinders: <http://www.ents-bbs.org/viewtopic.php?f=235&t=4585>

A really important consideration for the NTS is the beginnings of listing the various groups the NTS has worked with and with whom we have had informal or formal partnerships: <http://www.ents-bbs.org/viewtopic.php?f=281&t=4560>

Michael Taylor found another record – the new world's tallest Sugar Pine 264' (80.4m) the "Sugar Tower". <http://www.ents-bbs.org/viewtopic.php?f=69&t=4588>

A beautiful series of photos and reports from Colorado by James Robert Smith starting with: <http://www.ents-bbs.org/viewtopic.php?f=70&t=4583>

Michael Gatonska continued his series of natural soundscapes with Thumper Mountain Sunrise:

<http://www.ents-bbs.org/viewtopic.php?f=246&t=4608>

New member Zane Moore post about the tallest hardwoods he has found in west coast with some new height records: <http://www.ents-bbs.org/viewtopic.php?f=69&t=4601>

An article appeared in the National Park Traveler Tallest Native Hardwood Tree In North America Is Located In A National Park

Submitted by Jim Burnett on October 24, 2012 featuring the tallest tuliptree found by NTS last spring. <http://www.ents-bbs.org/viewtopic.php?f=297&t=4632>

Our European contingent, with Kouta Rasanen, Joroen Philippona, and Michael Spraggon started a series of posts on a summer expedition to the Balkans in several former Yugoslav republics: <http://www.ents-bbs.org/viewforum.php?f=386> including the Sgerm Spruce which is the tallest native European tree: <http://www.ents-bbs.org/viewtopic.php?f=386&t=4642>

Mario Vaden reports on his discovery of a new Maple height record for Bigleaf maple: The Humbolt Honey at 157.8 ft. in northern California: <http://www.ents-bbs.org/viewtopic.php?f=69&t=4644>

Brian Beduhn posted about numerous trips this month and included excellent photos of the Middleton oak and Angel Oak in South Carolina: <http://www.ents-bbs.org/viewtopic.php?f=9&t=4582>

There were many more posts by people new to the organization and by NTS founders Robert Leverett and Will Blozan. There is just too many things that have happened in this past month that warrants mention that I simply can't fit them all into an editorial. So I guess all of you will need to read this issue of the magazine and click on the incorporated links to read the full discussions, or visit the BBS at <http://www.ents-bbs.org> and dive into the discussions.

## [Goulding Creek Trail , CO - Bob Leverett's Suggested Hike](#)

▣ by [jamesrobertsmith](#) » Mon Oct 01, 2012 11:26 am

We took Bob's advice to hike to the aspen groves on the Goulding Creek Trail for our last hike before

leaving the mountains to head to Denver for the flight out. This trail by that time was really easy for me, after struggling to acclimate my body to the ridges and passes of the San Juans where I had stayed between 11K and almost 13K feet for eight solid days. I practically ran up the Goulding Creek Trail, surprised to find that there was no Goulding Creek. At least not as such (with water in it).



What are these scrubby little oaks?



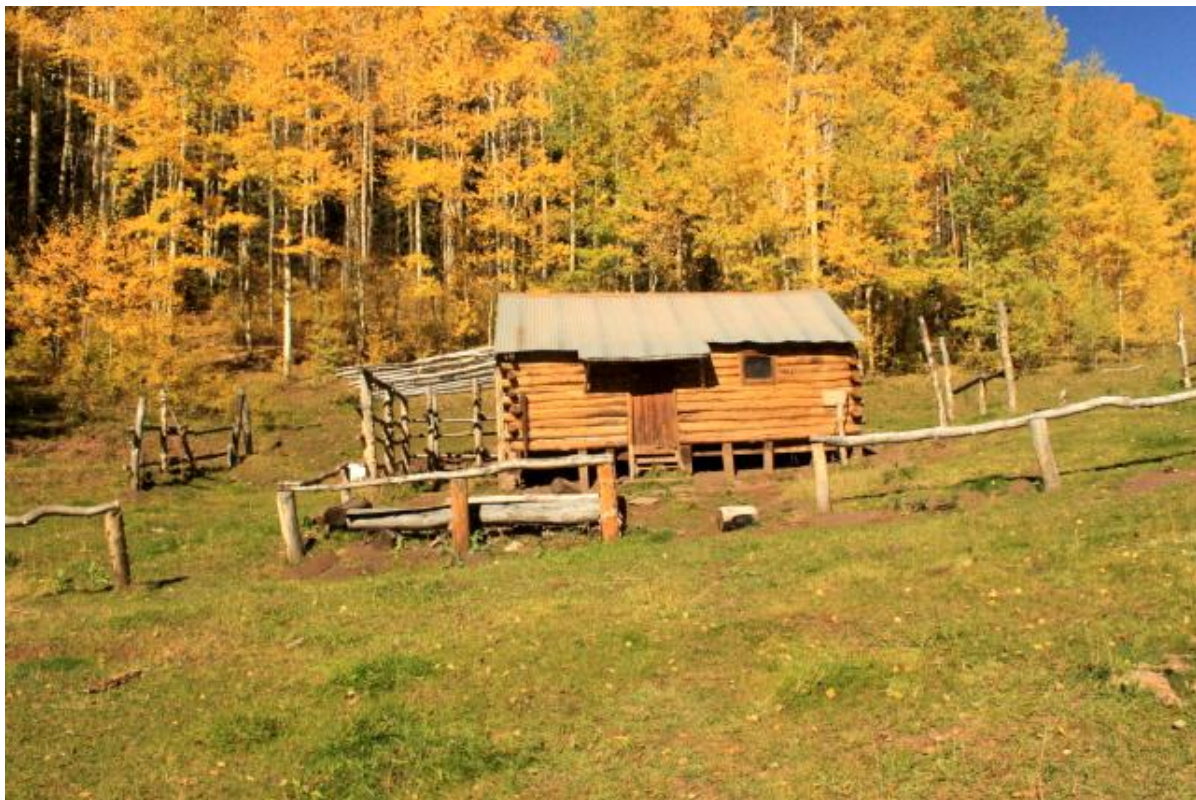
At one point you have to go through a gate where some rancher leases grazing lands. Close the gate!











Just past this cabin is where I turned around to head back.



Why are some aspens pure gold while others are more red?



Leaves upon the ground!



<http://youtu.be/C98Fct9TNYE>

James Robert Smith

108.0'	4225
127.4'	no#
129.9'	no#
136.1'	4214

## Re: Biltmore Estate Trees

by **bbeduhn** » Mon Oct 01, 2012 4:22 pm

I spent some more time with the hemlock grove that contains the 143.6'. I'll call it the Underpass Grove, as it begins just after traveling under Route 40. I have a slightly adjusted height for that tree and the rest should all be new trees.

old	current	Biltmore#
143.6'	143.9'	168
	113.7'	4388
	127.9'	4389
	126.6'	4383
	134.1'	4384
	144.2'	4386
	123.8'	1341
	112.3'	1342

There are yet more to be measured in the grove, which is flanked by tall white pines. I couldn't hit the tops of a couple next to the 144 footer.

Brian Beduhn

## In 'Music Of Trees,' A Symphony In The Key Of Cedar

by **edfrank** » Mon Oct 01, 2012 8:55 pm

In 'Music Of Trees,' A Symphony In The Key Of Cedar

<http://www.npr.org/2012/10/01/162110681/in-music-of-trees-a-symphony-in-the-key-of-cedar>

 [20121001\\_atc\\_08.mp3](#)

**Re: Metasequoia Glyptostroboides (Dawn Redwood)**

by **bbeduhn** » Tue Oct 02, 2012 8:41 am

Some more finds:

Rt 191 So. Furn. Liq.                    64.4' 65.7' 66.6'

Rt. 191 Bent Ck. Bapt. Ch.            64.8' 70.6' 70.8'

Biltmore Forest  
Forest Rd.                                96.9' 100.7'

WNC Arboretum  
At main entrance                        119.7' 105.0' 79.2'  
113.7' 101.7' 115.0' 119.3' 117.8'

Gardens  
variety 25-30'

Really nice row of 8!  
6 sheridan Spire

These appear to be  
identical aside from sprouts growing from the trunk.

Brian Beduhn

**Scenery from Colorado**

by **jamesrobertsmith** » Tue Oct 02, 2012 5:32 pm

If John Muir knew about this place, he must have  
kept it to himself.



Very deep in the Weminuche. If you're this far along  
and need help...you're screwed.

James Robert Smith

## [Global Warming could cripple SW forests](#)

▣ by **Joe** » Mon Oct 01, 2012 9:17 am

Climate Change Could Cripple Southwestern U.S. Forests: Trees Face Rising Drought Stress and Mortality as Climate Warms

<http://www.sciencedaily.com/releases/2012/09/120930142106.htm>

## [Re: Global Warming could cripple SW forests](#)

▣ by **jamesrobertsmith** » Mon Oct 01, 2012 7:47 pm

Last week we passed through what seemed to be endless miles of dead Lodgepole pine forests, killed off due to rising temperatures which allowed beetles to fell them from horizon to horizon. Human-caused global warming is here, it's too late to do anything about it, so prepare for the freaking worst.



Most of the trees in this vista were dead from pine beetle infestation.

James Robert Smith



## [Re: Scenery from Colorado](#)

by jamesrobertsmith » Tue Oct 02, 2012 8:47 pm

We ventured about as deep into the San Juans as you can, I reckon. Most of the trip was grand, but there was one day that was pure Hell. We were trying to

get over Columbine Pass to Chicago Basin, but a freight train of thunderstorms (during heavy snow) would not allow us to move up to the 12K-foot level and we had to retreat and camp in a very uncomfortable spot then try again the following morning. I have to say...the experience was horrid. I was cold, wet, exhausted, suffering from altitude sickness, and frankly depressed.



This was taken shortly before the thunderstorms raked the pass and kept us from going over.

James Robert Smith

## [Middleton Oak and Angel Oak](#)

▣ by **Larry Tucei** » Tue Oct 02, 2012 5:26 pm

Brian, If you get to the Middleton Oak a cookie was cut from one of the limbs that fell off a couple of years ago. Vic Shelburn back in 09 was getting the cookie aged I wonder what happened with that? [http://groups.google.com/group/entstrees/browse\\_thread/thread/9eeb857ef5cdd528?hl=en](http://groups.google.com/group/entstrees/browse_thread/thread/9eeb857ef5cdd528?hl=en) I'll see if I can contact Vic. We all were curious as to the age of the tree the limb cut would help narrow its age down. I would guess in the 300 year old range but I've learned many things from NTS- great size doesn't always mean great age. I've measured the rowed Live Oaks at Oak Alley and got from 29' 11" to 16' 3" CBH. These were all planted around the same year time period about 280-290 years ago. What a large difference in growth rates must be genetics. I would love to measure the Angel Oak and the Middleton Oak. The next time I get up your way I must make my way to Middleton and to the Angel Oak. Both are beautiful trees and are as big as any Live Oaks I've seen!

Larry Tucei

## [Re: Middleton Oak and Angel Oak](#)

▣ by **Larry Tucei** » Wed Oct 03, 2012 10:03 pm

All, I emailed Vic Shelbourne the other day and this was his response on the Cookie. *"As for the Middleton oak, the cookie showed a ring count of less than 200 years (about 190) for a limb less than 20 feet off the ground and near the main stem. Based on those data, it would seem that the Middleton oak is NOT nearly as old as people have believed—300-400 yrs plus which people conjecture, It may be barely 200 which I think would surprise a lot of people. Live oaks just grow a lot faster than people realize. I have yet to find someone to corroborate the ring count (except students) so I have not advertised that fact. SO that is where we stand. The 6" thick cookie is about 2 feet by 3 ft in diameter (oblong) and must weigh over 100 lbs. It is not going anywhere in our wood shop!"*

Larry Tucei

## [Re: Middleton Oak and Angel Oak](#)

▣ by **bbeduhn** » Thu Oct 04, 2012 12:43 pm

Upon further research, two dates stand out for me. 1741 was the year the gardens were started. It would seem logical that the oak was planted in that year or shortly thereafter. Given its prominent location, it would seem that it was planted. Another date is 1786, when Michaux visited. This seems more arbitrary but does jibe fairly well with Larry's guess of just barely 200, 226 to be exact. these are just guesses but appear to be plausible. The oak is fairly vibrant in appearance, indicating some degree of youth but also isn't putting on girth, and indication of greater age. The Angel Oak appears to be older but is certainly putting on girth somewhat rapidly for its age. It's a mystery for now but it is obvious that it isn't in the 400 year old range.

## [Re: Middleton Oak and Angel Oak](#)

▣ by **Larry Tucei** » Thu Oct 04, 2012 3:40 pm

Brian, That was an age estimate that Vic Shelbournes team from University of Clemson came up with. I believe they are still getting more opinions on that. I would have guessed the Middleton Oak to be between 200-300 years old. I was not surprised by the age estimation due to measuring Live Oaks these last few years. But 6 years ago I would have thought that a tree of its size would be well over 300-400 years old. So many factors influence growth rates. One thing for sure Live Oaks have faster growth rates than previous thought. I have learned from NTS and experience that estimations can be very wrong. Hopefully Neil Pederson will weigh in on this he is one our experts on tree ring study.

Larry Tucei

## [Leica Disto D8](#)

▣ by **KoutaR** » Mon Sep 17, 2012 6:44 am

NTS, I was measuring trees with a German tree hunter yesterday and I had an opportunity to try out his Leica Disto D8. It is a precision instrument with a lot of programs, modes and settings, but tree measuring with the sine method is impossible: Disto's beam is too weak and you get no reflection from tree tops. In Leica Disto D8, there are two settings for its beam intensity, but even the stronger setting is not enough. Branches are ok, but from tree tops we did not get any single measurement.

Could you list the rangefinders which make the sine measuring possible, including more expensive instruments? Specifically, which rangefinders make the sine measuring possible without an external clinometer, like Nikon Laser 550A S, Nikon Forestry 550 and Nikon Forestry Pro?

Kouta Rasenan

## [Re: Leica Disto D8](#)

▣ by **dbhguru** » Mon Sep 17, 2012 8:55 am

Kouta, Laser Technology Inc's TruPulse 360 line, TruPulse 200 line, and Impulse 200 line all allow sine-based measurements. [They all have built in clinometers] and the accuracy of the tilt sensors is better than advertised. I've done many tests and posted some of the results in the Measurement and Dendromorphometry section.

Bob Leverett

## [Re: Leica Disto D8](#)

▣ by **M.W.Taylor** » Mon Sep 17, 2012 5:54 pm

Even cheaper is the Optilogic. Cost about \$330. Too bad the Leica D8 laser is too weak to bounce off a tree top. <http://www.opticsplanet.com/opti-logic-...800lh.html> Make sure it's the [LH] model which has the Hypsometer function. The 1000 yard version is only \$350.

Michael Taylor

## [Re: Leica Disto D8](#)

▣ by **Karlheinz** » Mon Oct 01, 2012 6:37 pm

Leica Disto D8 benefits by measuring short distances, where Nikons and TruPulses do fail. When measuring a tree by tape drop method Disto can scale the rest in treetop by sin-method, but in field-test it was not always so easy.

In <http://www.fs.fed.us/eng/pubs/pdf/10191803.pdf> (Effective April 2010) the foresters described a few of rangefinders (Disto, Optilogic, TruPulse, Vertex and LaserAce) and they made comparison measurement series to evaluate accuracy and precision, focus on horizontal distance to an unobstructed target and through dense brush. One result of this test is, that OptiLogic, commonly used by foresters, is the cheapest but clear-cut the most inaccurately. Therefore Optilogic is not shortlisted for me.

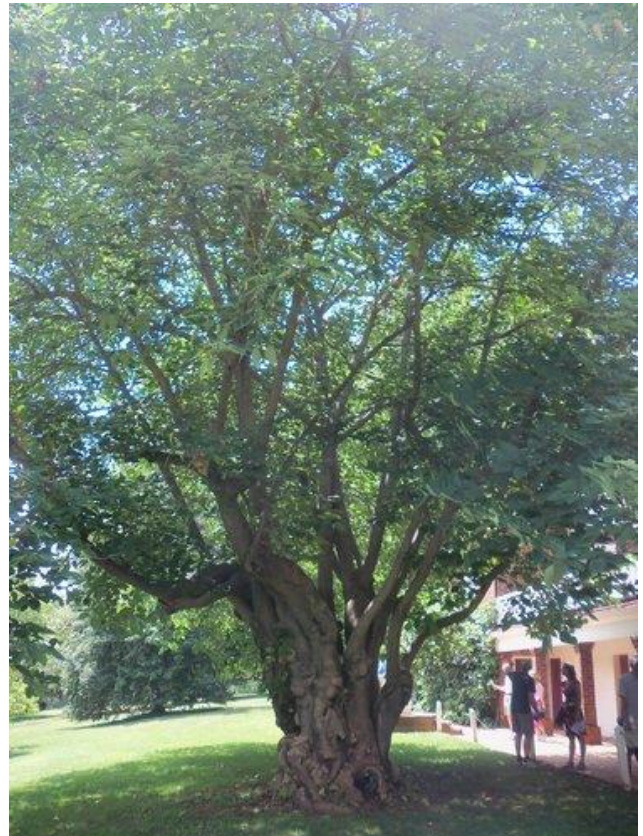
LaserAce was the most exactly one. Look at Trimble website for the current LaserAce 1000: <http://www.trimble.com/mappingGIS/laser...lications&> The LaserAce has compared to the TruPulse shorter range but higher accuracy. Could be the best solution for tree heights occurring in Europe. I am very interested to learn what experiences at tree height measurements are with the LaserAce, is the Laser strongly enough to bounce off the tree top

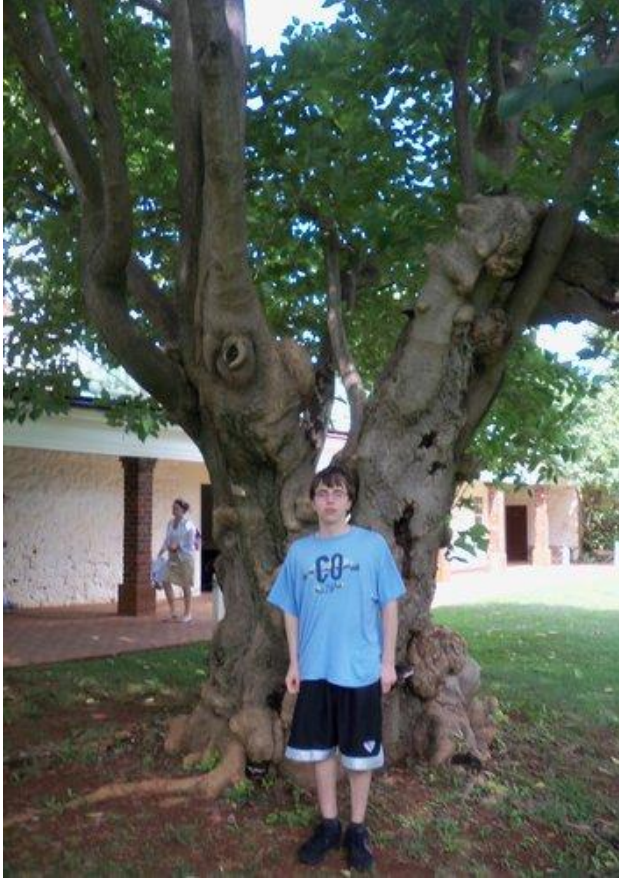
Karlheinz Brüne

## [Enchanting Paper Mulberry \(\*Broussonetia papyrifera\*\), VA](#)

by **RyanLeClair** » Sun Oct 07, 2012 3:06 pm

This amazing tree was at Monticello. The various mulberries are considered tasteless in our time, but apparently our forefather Jefferson was convinced of the opposite, for large swaths of his Virginia residence are/were decorated with these trees. This particular paper mulberry is to be found near the large kitchen.





Ryan LeClaire

## [#1\) Measurement Exercises for October 12th](#)

by [dbhguru](#) » Mon Oct 01, 2012 9:48 am

NTS,

The Oct 12th advanced tree measuring workshop nears. I intend to be ready. I've picked out most of tree demonstration trees. One is the Cabin Pine. I've attached an Excel spreadsheet that shows the tree and measurements as of yesterday. This relatively young, vigorously growing white pine holds promise of being a future super performer. It's present height is

161.0 feet and it has a healthy, multi-candle top that should push upward for several decades to come. It is located in a relatively protected spot and is growing in a moist location.

The attached spreadsheet shows the plan for the demonstration trees. I suppose I could have gotten GPS coordinates for the measurement location. I may yet do that and add the coordinates. I'm reluctant to give precise location information on the Mohawk pines.

As can be seen, the top of this tree is almost exactly over its base. It has a slight lean, but self-corrects. Some of the trees in the demonstration will reflect a difference between sine and tangent methods of at least 20 feet. I'm striving to include every shape so that attendees can get a better understanding as to why things can go right in one case and badly wrong in another.

So far NTS attendees for the Oct 12th event include Andrew Joslin, Bart Bouricius, Ed Ritz, Dale Luthringer, Carl Harting, Joe Zorzin, Jack Sobon, and yours truly. DCNR is funding Dale's participation. I haven't heard from John Eichholz, nor Doug Bidlack. I'm hoping a few other Ents will be able to make it. The big disappointment is that Will and Lee will not be able to attend this year's event. Bummer. But their spirits will be there. Unfortunately, Ed Frank won't be able to attend either. However American Forests and LTI will be present.

There will be more representatives from the forestry profession at this event there probably any other. Attendees get continuing education credits toward license renewal, so the incentive is definitely there. Well, its off to Mohawk again to develop more spreadsheets for the demonstration trees we'll be measuring.

 [MTSF-CabinPineWorksheet.xlsx](#)

Robert T. Leverett

Statistics for Cabin Pine: Mohawk Trail State Forest				
TruPulse 200	Distances in feet, angles in degrees			
Target	SD	Inc	VD	HD
Top Target	219	39.9	140.4774693	168.0091682
Bottom Target (reflector)	170	-4.6	-13.63381714	169.4524093
Bottom Target to Base			-6.9	
Sine Height			161.0112864	
Tangent Height			162.2180233	
		Difference	1.206736859	1.44324109

**Notes:**


- The top is almost perfectly centered over the trunk.  
The horizontal difference is  
 $169.452409 - 168.009168 = 1.44324109$  feet by calculation. This translates to a height difference between sine and tangent determinations of the following.  
 $D_h = (169.452409 - 168.009168)\tan(39.9) = 1.20673686$
- The sine height is the correct one.
- The pre-season height of the Cabin pine was 160.3 feet. This season's growth appears to be 0.7 feet. However, the candles grow at different rates.
- The Cabin Pine's girth is 8.9 feet. The trunk volume is approximately 365 ft<sup>3</sup>
- The tree's age is not known, but likely around 125 years based on the bark characteristics, especially on the upper trunk.
- Height measurements were all determined using a LTI TruPulse 200.
- Date of measurement was 9-30-2012 by Bob Leverett, Native Tree Society.
- On the next spreadsheet, we see a profile of the pine in the first image and in the second image, we see the highest candle identified by the red arrow. As can be seen, the high point does not appear to be the highest, because the apparent high point is actually on a branch that is closer to the measurer. The high point is not visible in the first image.
- There are several growth candles that are between 158 and 160 feet, showing the challenge of identifying the highest point in the crown.
- The location of the measurement is across the road from Cabin #6.



## [October 12th Advanced Tree Measuring Workshop](#)

by **dbhguru** » Tue Oct 09, 2012 3:39 pm

NTS, The attachment is what I'll be handing out to the attendees of the referenced workshop. Some of you who can't attend may find it useful.

 [Advanced Tree Measuring WorkshopOrig.doc](#)

Robert T. Leverett  
Co-founder and Executive Director  
Eastern Native Tree Society  
Co-founder and President  
Friends of Mohawk Trail State Forest

# **Advanced Tree Measuring Workshop**

## **Mohawk Trail State Forest**

**Conducted by Bob Leverett**

**Oct 12, 2012, 9:00AM – 4:30PM**



**Cosponsored by**

**Massachusetts Department of Conservation and Recreation**

**Native Tree Society**

**Friends of Mohawk Trail State Forest**

**Massachusetts Audubon**

**Trustees of Reservations**

**American Forests**

**Laser Technology Inc.**



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## Introduction

The Native Tree Society (NTS) has developed this handout to illustrate four methods of measuring tree height: sine, tangent, external baseline, and similar triangles. The material in this guide can be freely used and distributed, courtesy of NTS. If you distribute or extract material, please credit the Native Tree Society as the source.

The preferred measurement method is sine; however, if the measurer doesn't possess the necessary equipment, one of the other techniques can be used, albeit cautiously. All the methods are based on mathematical assumptions. It is essential to understand the assumptions and insure they are fulfilled, if measuring errors are to be avoided. The sine method results in the smallest errors, but requires the most sophisticated and expensive equipment.



## Sine Method

NTS commonly measures tree height using the sine method. To apply this method, visualize three parallel, horizontal planes, one through the highest top, one through the measurer's eye, and one through the base of the tree. Height is defined as the vertical distance between the top and base planes. Thought about in another way, there are two targets (top and base of the tree), and the objective is to measure the vertical distance between the two without making any further assumptions about their positions relative to one another. For example, it is not necessary to assume that they are vertically aligned.

While keeping your eye in the middle horizontal plane, you measure the slope distances from the eye to the top and eye to base (hypotenuses of two right triangles) with an infrared laser rangefinder, and the corresponding angles with a clinometer or tilt sensor. Then you make the following calculations (see diagram on next page):

$$\text{Height to top} = \text{slope distance to top} \times \sin(\text{angle to top})$$

$$\text{Height to base} = \text{slope distance to base} \times \sin(\text{angle to base})$$

$$\text{Total Height} = \text{Height to top} + \text{Height to base}$$

(if top is above and base is below eye level)

$$\text{Total Height} = \text{Height to top} - \text{Height to base:}$$

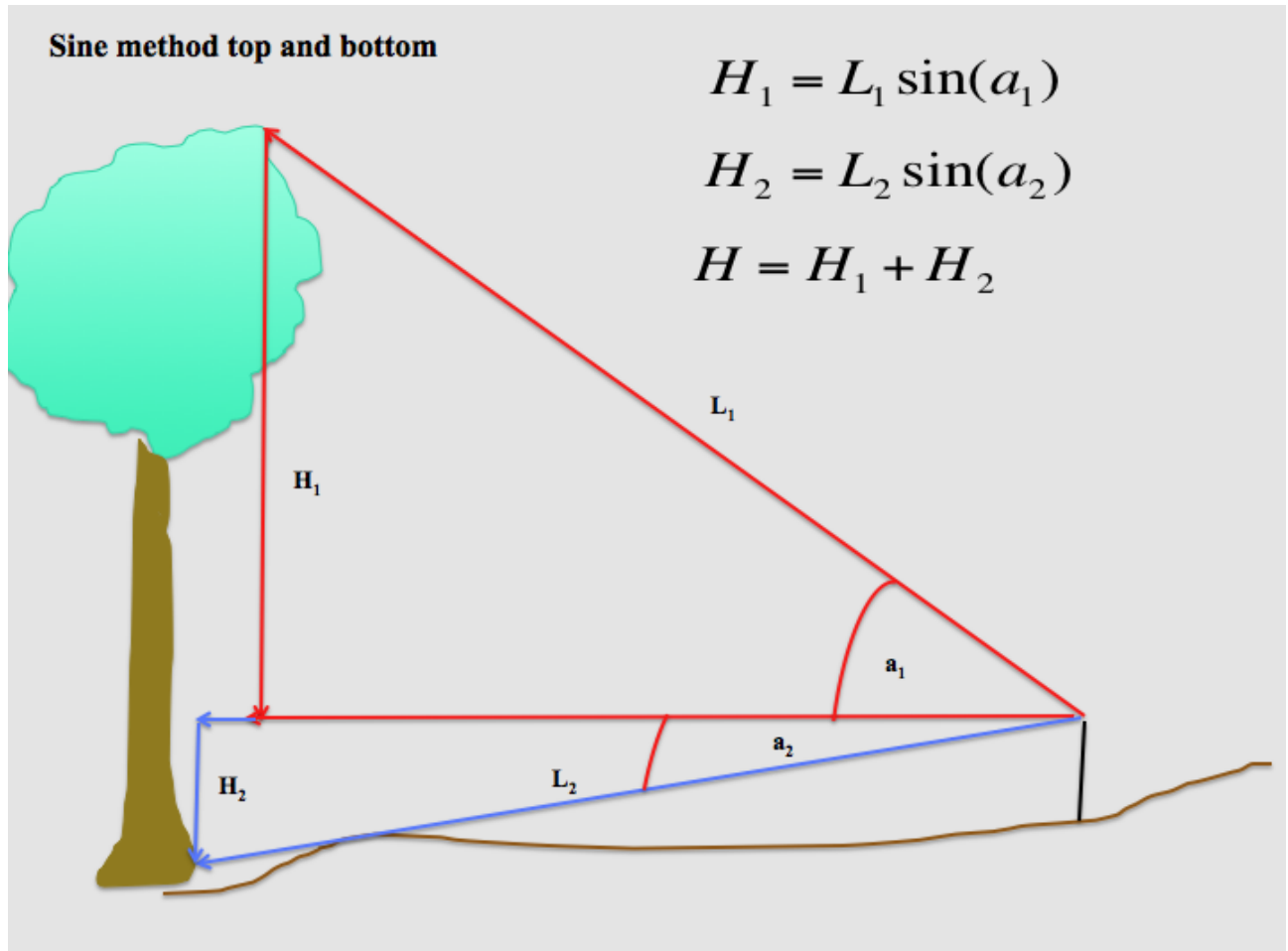
(if both top and base are either above or below eye level)

Where the two height components are added, the assumption is that both angles are treated as positive values. However, angles above eye level are usually considered positive and those below as negative. If the angles are treated as signed values, the last formula works in all cases.

What is special about this method? It eliminates the problem of the top not being positioned vertically over the base. In the accompanying diagram, the highest point is not positioned vertically over the base, unlike diagrams accompanying clinometers and in Internet descriptions for measuring tree height. These diagrams typically show a single baseline to the trunk of the tree with angles taken to the top positioned vertically over the base.

In essence, measuring the full height of a tree requires two baselines or their hypotenuse equivalents. Trigonometrically speaking, the problem has never been one using a common baseline to the top and base. Nor is it necessary that the triangles exist in the same vertical plane. For a more complete explanation, see NTS guidelines for measuring tree height at [www.nativetreesociety.org](http://www.nativetreesociety.org). You can also visit the NTS BBS and sign up as a member. There are no dues. You can then visit the Measuring and Dendromorphometry posts and read full discussions of the tree measuring methods to include sources of error and how to evaluate and control them.

Here is the diagram for the sine method as described above.



Note that the top of the tree is horizontally in front of the trunk. Were the measurer using a tape and clinometer to measure height, extending the baseline all the way to the trunk and taking the angle to the top would lead to an over-calculation of the tree's height above eye level. Conversely if the top of the tree is behind the trunk relative to the measurer, using the distance to the trunk as a baseline leads to an under-calculation of the tree's height.

To reiterate what was previously said, measuring the height of a tree is a two-baseline or hypotenuse problem. The tree must be visualized as an irregularly shaped object in 3-dimensional space. A connection of base to top does indeed occur through the trunk, limb, branch, and twig structure, but the connection is seldom through an absolutely vertical pathway involving the trunk. Plantation spruce trees are an exception that often comes close to fulfilling the vertical pathway model.

We now turn to the most popular method for measuring tree height, the tangent or slope method. This method has been implemented in hypsometers and clinometers. We begin with the idealized method that employs a single baseline to the trunk.

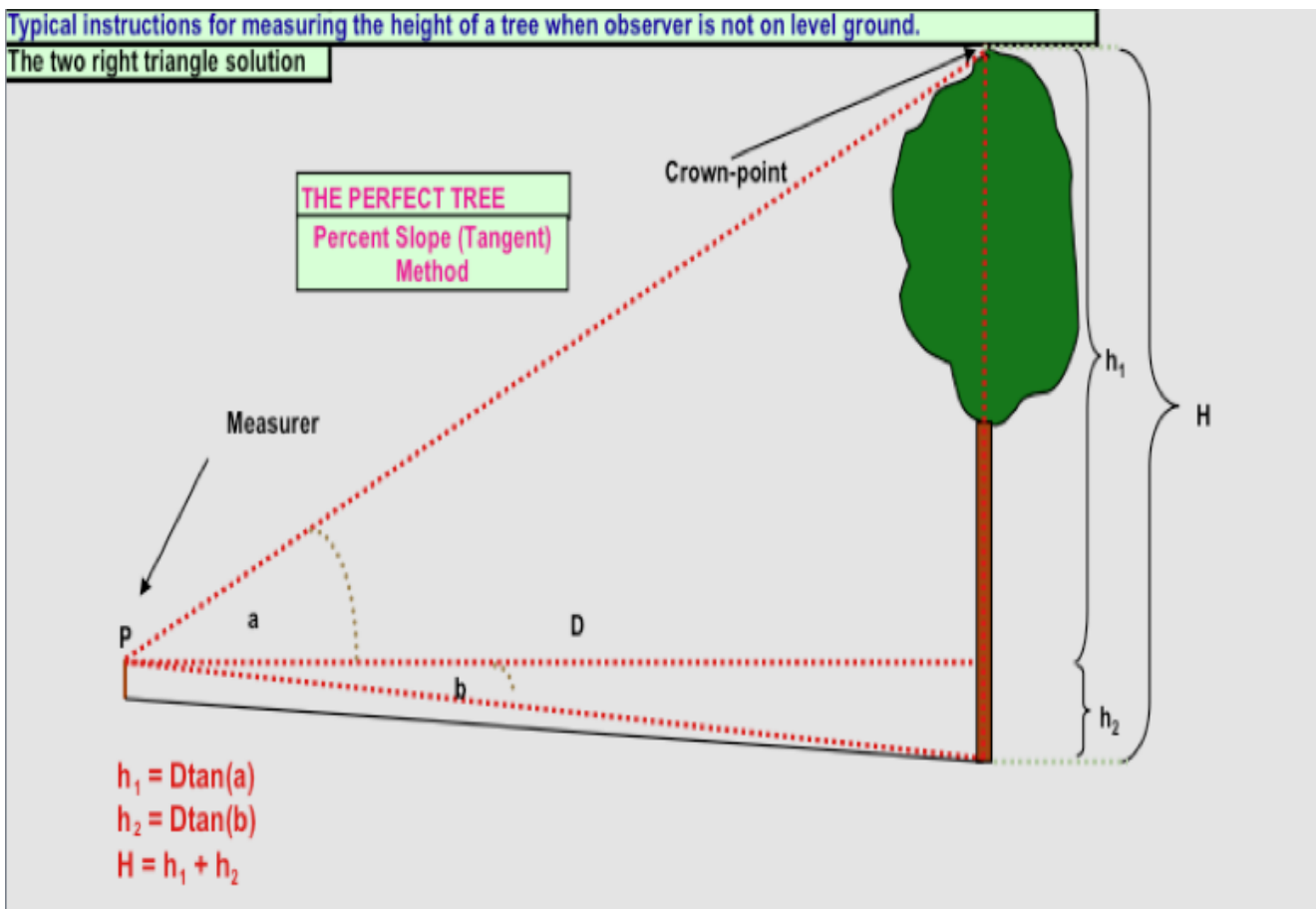
## Traditional Tangent Method

Height to top = baseline distance to top x tangent(angle to top)

Height to base = baseline distance to base x tangent(angle to base)

Total Height = Height to top + Height to base (if top is above and base is below eye level)

Total Height = Height to top - Height to base: (if both top and base are either above or below eye level)

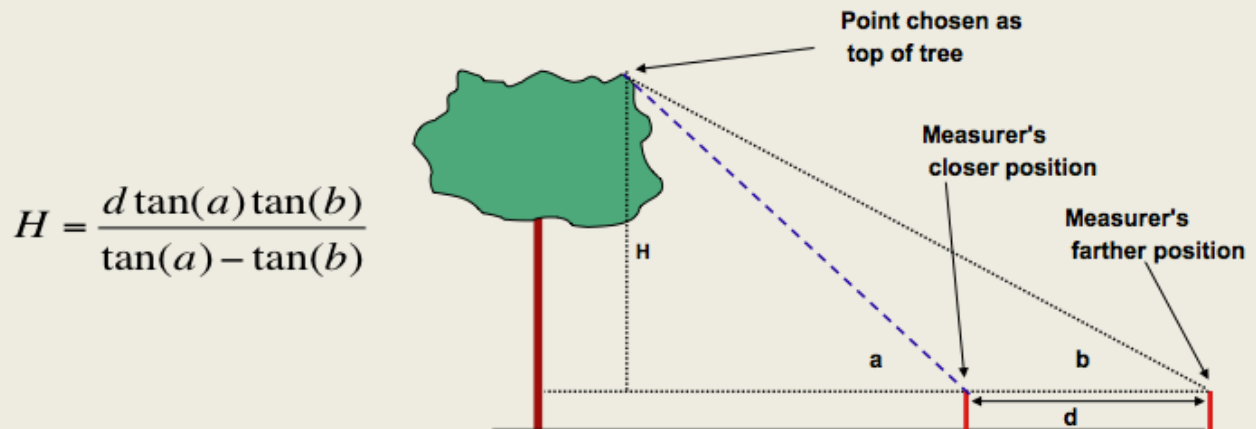


Note that in the above drawing, a common baseline is used for top and base, denoted by the variable D. If the top is not vertically positioned over the base, crown-offset measurement errors occur with the tangent method. One way to get around this problem is with the External Baseline Method as show in the diagram below. The method is illustrated for the height component above eye level, but can be extended to include the lower component.

## External Baseline Method Variation

### Advanced use of tangent method: External Baseline Method

Compute tree height using tangent method when crown-point being sighted is not over base and no easy way to determine crown-point offset



**Notes:**

1. The baseline is represented by  $d$  in the above diagram. It does not reach the trunk.
2. In this version of Extended Baseline, the baseline is level.
3. In a more advanced version, the assumption of a level baseline is lifted.

If the baseline from the closer to more distant position is not level, measure the angle from the farther position to the closer one (position of eye at each location). The distance  $d$  is the slope distance between eye positions. The following formula then works.

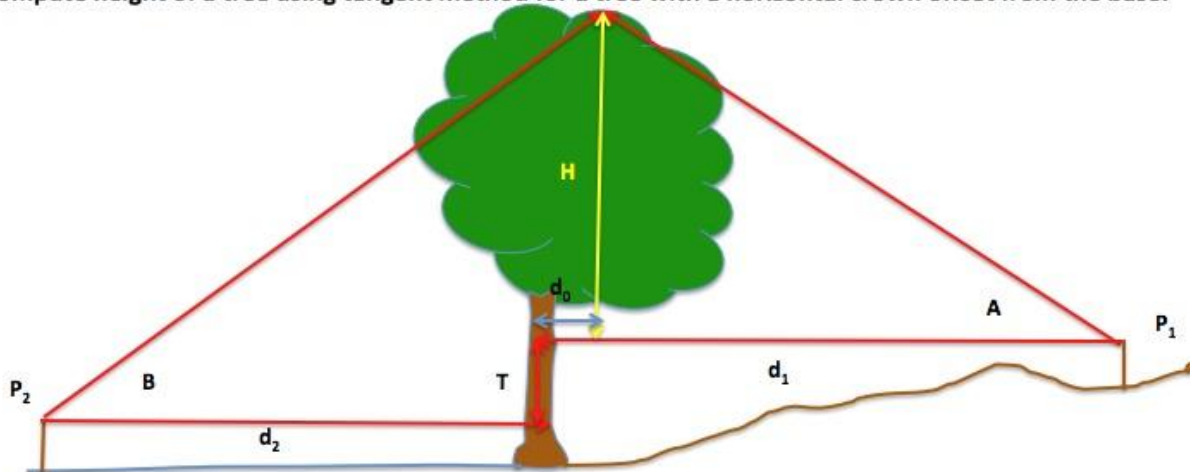
$$H = \frac{d \tan(a) \cos(c) (\tan(b) - \tan(c))}{\tan(a) - \tan(b)}$$

Because three angles are being measured, this version of the Extended Baseline Method is especially sensitive to angle and distance errors. Do not use this method if you can't make extremely accurate measurements of the input variables.

## Double Tangent Method

The high point of the crown of a tree may be offset from the base and also visible from points that are diametrically opposite, i.e. 180 degrees apart. This won't happen often, but when it does, it opens the door to a rather novel solution to determining height, as shown the diagram below.

Compute height of a tree using tangent method for a tree with a horizontal crown offset from the base.



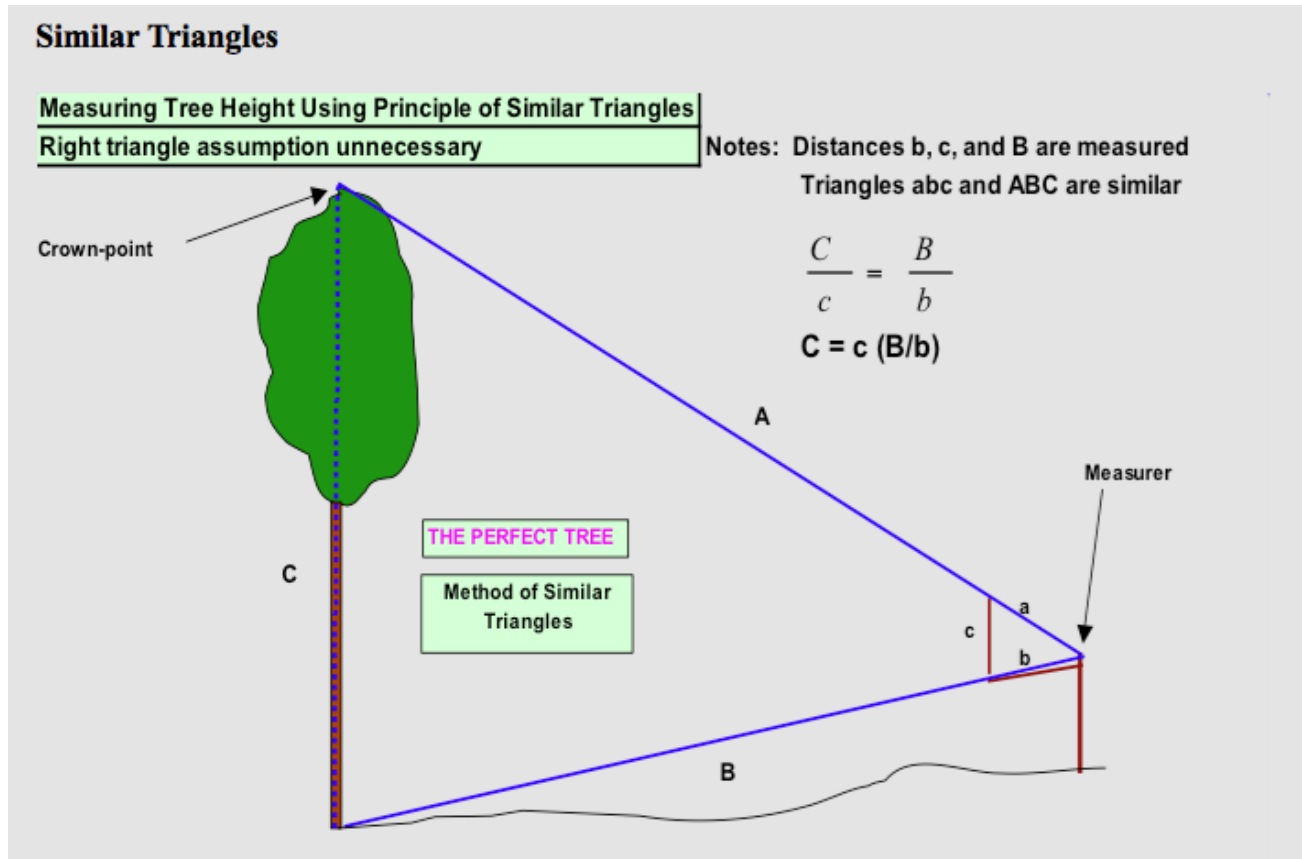
$$H = \left[ \frac{\tan B (d_1 + d_2) + d_0}{\tan A + \tan B} \right] \tan A$$

**Notes:**

1. The objective is to compute height of the top of the tree above station  $P_1$ .
2. The top must be visible from opposite sides of the tree. Consequently, this method will usually not be able to be applied. It is, however, a tool in the toolkit.
3.  $P_1$  and  $P_2$  represent the positions of the measurer's eye on the opposite sides of the tree.
4. if  $P_2$  is lower than  $P_1$  the  $T > 0$  else  $T < 0$ . The diagram shows  $P_2$  lower than  $P_1$ .
5. The equation for  $H$  represents an algebraic derivation that first computes  $d_0$ , then  $d_1 - d_0$ . The quantity in brackets is equal to  $d_1 - d_0$ .
6. Once  $H$  is computed, then height below eye level from station  $A$  is computed by a conventional application of the tangent method.

## Similar Triangles

We now turn to the last of the methods, the method of similar triangles. Similar triangles are triangles that have the same shape, i.e. corresponding angles are equal.



The use of similar triangles is often presented as the “stick method” on websites featuring champion tree lists. Basically, it is an attempt to create a method for measuring tree height that minimizes the use of mathematics, but greatly over-simplifies what is required.

The primary source of error for this method occurs when the two triangles are not actually similar, and/or c, b, B, or a combination, are mis-measured. Early hypsometers often used this method to measure tree height, but it is error-prone and there is no easy way to adjust for a crown-to-base horizontal offset distance. For example, the vertical side of the small triangle is supposed to shadow the vertical side of the large triangle, which is the line connecting the top of the tree to the base. But what if this line is not vertical, which it often won't be, because the top of the tree is not positioned vertically over the base. Then the triangles are not similar and the simple ratio and proportion of similar triangles does not apply.

Next we look at a way of evaluating angle and distance errors. We use formulas from calculus to approximate the impact of small errors in the input variables.



## Formulas to Calculate Impact of Instrument Error

Tree measurers need a straightforward way to calculate the error associated with instrument errors for a combination of distances and angles. For example, suppose we measure a tree with a laser rangefinder and clinometer using the sine method. If the hypotenuse distance is actually 150 feet and the angle is actually 40 degrees, but we read 148.5 feet as the distance, and 39.8 degrees as the angle, what is the effect on the height? We could give an analogous situation for the tangent method. The following formulas allow the measurer to calculate the impact of relatively small instrument errors.

### Sine-based formula for error investigation

$L$  = actual hypotenuse distance to target

$A$  = actual angle to target

$dA$  = error in angle in radians

$dL$  = error in distance to target

$dH$  = error in height due to  $dA$  and  $dL$

$$dH = L \cos(A)dA + \sin(A)dL$$

### Tangent-based formula

$D$  = baseline distance to trunk

$A$  = angle to target

$dA$  = error in angle in radians

$dD$  = error in baseline distance

$dH$  = error in height due to  $dA$  and  $dD$

$$dH = \frac{D}{\cos^2(A)} dA + \tan(A)dD$$

## Examples

In the example posed above, the impact on height would be as follows.

$$dH = 150 \cos(40) \left( -0.2 \frac{\rho}{180} \right) + \sin(40) (-1.5) = -1.365$$

The impact of a -0.2 degree error in the angle and -1.5 feet in the distance is -1.365. The actual impact is -1.362. The difference is because we are using differentials to calculate impact. Note that to convert degrees to radians, multiply

by  $\frac{\rho}{180}$ .

Next, we provide a version of the measuring worksheet set up to do a single measurement. You can skip rows A, B, C, and T if you don't have a TruPulse 360 or a compass. The worksheet utilizes the LTI TruPulse 360, but you can use any laser rangefinder and clinometer with a scientific calculator.

## Advanced Tree Height Worksheet

Tree Height Measuring Worksheet (Native Tree Society: for LTI TruPulse 360 - dist ft/mtrs, ang = degrees)		
SPECIES:	LOCATION:	
<b>Same top and base must be measured for each trial</b>		
Var.	Definition	
A	<b>Azimuth of crown point</b> (AZ return of TruPulse)	
B	<b>Azimuth of base point</b> (AZ return of TruPulse)	
C	<b>Angle between crown and base</b> <span style="float: right; color: blue;"><math>abs(B - A)</math></span>	
D	<b>Crown slope distance</b> ( SD return of TruPulse)	
E	<b>Crown angle</b> (INC Return of TruPulse)	
F	<b>Crown horizontal distance</b> (HD return of TruPulse) <span style="float: right; color: blue;"><math>D \times \cos( E )</math></span>	
G	<b>Crown vertical distance</b> (VD return of TruPulse) <span style="float: right; color: blue;"><math>D \times \sin( E )</math></span>	
H	<b>Tan hgt using correct baseline for crown</b> <span style="float: right; color: blue;"><math>F \times \tan( E )</math></span>	
I	<b>Base slope distance</b> (SD return of TruPulse)	
J	<b>Base angle</b> (INC return of TruPulse)	
K	<b>Base horizontal distance</b> (HD return of TruPulse) <span style="float: right; color: blue;"><math>I \times \cos(J)</math></span>	
L	<b>Base vertical distance</b> (VD return of TruPulse ) <span style="float: right; color: blue;"><math>I \times \sin(j)</math></span>	
M	<b>Tan hgt using correct baseline to base</b> <span style="float: right; color: blue;"><math>K \times \tan(J)</math></span>	
N	<b>Total vertical hgt</b> (sine-based calculated height or ML-VD return of TruPulse) <span style="float: right; color: blue;"><math>G - L</math></span>	
O	<b>Trunk distance near eye-level</b> (HD return of TruPulse used in HT below)	
P	<b>HT</b> (3-point tangent-based height calculation for TruPulse)	

Q	Hgt diff (sine versus tan)	$abs( N - P )$	
R	Crown to base horiz offset	$abs(F - K)$	
S	Vertical Impact of offset	$R \times \tan( E )$	
T	Full horiz crown-base offset (ML-HD return of TruPulse)	$SQRT(F^2+K^2-2*F*K*cos( C ))$	
Notes:	TruPulse dist in feet or meters.		Same top and base must be measured for each trial
Rows A, B, C, and T to get full crown offset are optional			

**Note:** This worksheet takes the measurer through the process of measuring the height of a tree using the sine method, with a comparison to the tangent method having the correct baselines to top and base. In this case, sine and tangent yield the same results. We then compare these results to the tangent height as commonly used with a single baseline to the trunk. Hypsometers often employ this technique, i.e distance to trunk, angle to top, angle to bottom. The unstated assumption is that the top point is positioned vertically over the base. Most mature trees do not meet this assumption. In addition, if the measurer is too close, what is taken for the top is often the end of an upturned branch that is horizontally offset from the base by a significant distance. Next, we present a simplified worksheet to do sine and tangent measurements.

## Simplified Tree Height Worksheet

Tree Height Measuring Worksheet (Native Tree Society: for LTI TruPulse 360 - dist ft/mtrs, ang = degrees)		
SPECIES		PROPERTY:
LOCATION	Lat	Long
<b>SINE METHOD</b>		
Variable	Definition	
A	Crown slope distance ( SD return of TruPulse)	
B	Crown angle (INC Return of TruPulse)	
C	Crown horizontal distance (HD return of TruPulse) $A \times \cos( B )$	
D	Crown vertical distance (VD return of TruPulse) $A \times \sin( B )$	
E	Base slope distance (SD return of TruPulse)	
F	Base angle (INC return of TruPulse. Angles below eye are negative)	
G	Base horizontal distance (HD return of TruPulse): $E \times \cos( F )$	
H	Base vertical distance (VD return of TruPulse ) $E \times \sin( F )$	
I	Total Sine-based height $D - H$	
<b>TANGENT METHOD - Common application</b>		
J	Trunk horizontal distance: (HD return of TruPulse)	
K	Crown angle (INC return of TruPulse. Angles below eye are negative)	
L	Base angle (INC return of TruPulse. Angles below eye are negative)	
M	Total Tangent-based height: $J \times [ \tan(K) - \tan(L) ]$	
N	Diff between sine and tangent: $I - M$	
P	HT (3-point tangent-based height calculation for TruPulse)	

The major source of error for the sine method is instrument error. The major source for the tangent method is crown-offset not taken into account.

## Appendices



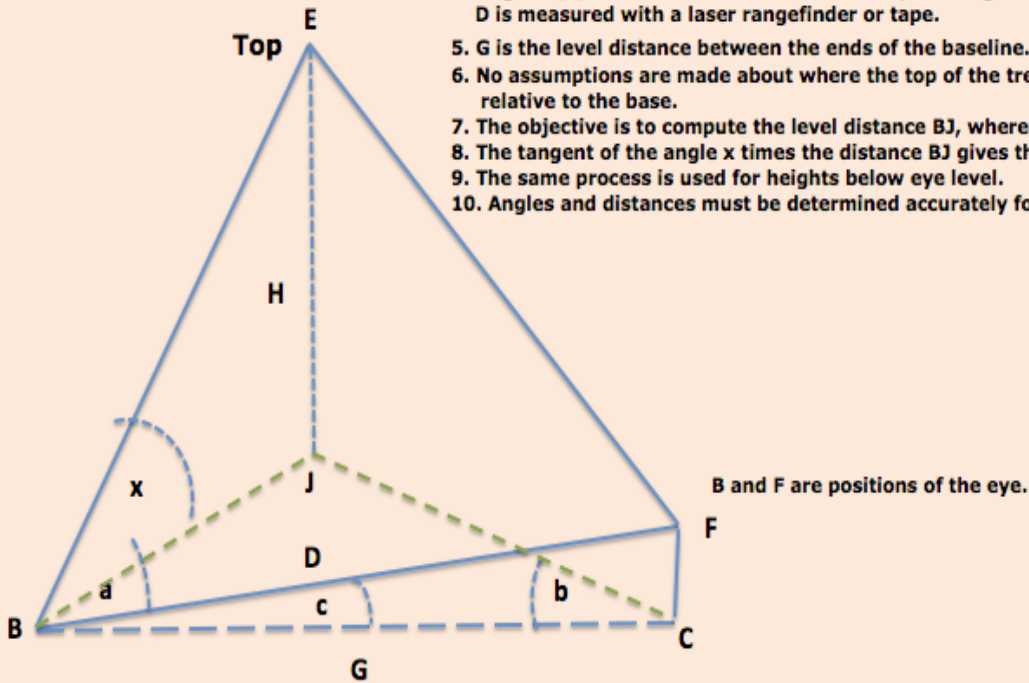
**Top of Jake Swamp White Pine: 171.0 feet**

## I. Parallax Method for Tree Height

Compute tree height above or below eye level using a lateral external baseline, one vertical angle, and two horizontal angles.

**Notes:**

1. Compute the height of point E above point B using a lateral external baseline.
2. Baseline runs laterally from B to F. Its slope distance is D.
3. The baseline is not aligned with the target E.
4. Angles a, b, and c are measured with a compass. Angle x is measured with a clinometer. D is measured with a laser rangefinder or tape.
5. G is the level distance between the ends of the baseline.
6. No assumptions are made about where the top of the tree is relative to the base.
7. The objective is to compute the level distance BJ, where J is vertically beneath E.
8. The tangent of the angle x times the distance BJ gives the height EJ.
9. The same process is used for heights below eye level.
10. Angles and distances must be determined accurately for this method to work.



Where E and J are not in vertical alignment

$$H = \left[ \frac{D \cos(c) \tan(b) \tan(x)}{[\tan(a) + \tan(b)] \cos(a)} \right] \quad G = D \cos(c)$$

The parallax method offers a flexible approach to measuring tree height when the base cannot be reached and an external baseline cannot be established that is in alignment with the target. However, the method is extremely sensitive to angle errors. It is presented here for completeness.

## II. Adjusting for Movement of the Centroid of the Instrument

A minor source of error for either technique is head or instrument swivel when shooting the top versus the bottom of a tree. The centroid of the instrument can be moved out of the middle horizontal plane. When using the sine method, a tripod is always advisable to avoid handshake. The next topic deals with a solution.

### Computing Tree Height with Centroid Adju Notes:

$$H_1 = L_1 \sin(\vartheta)$$

$$H_2 = L_2 \sin(\phi)$$

$$h_1 = R \cos(\vartheta)$$

$$h_2 = R \cos(\phi)$$

$$H_3 = h_1 - h_2$$

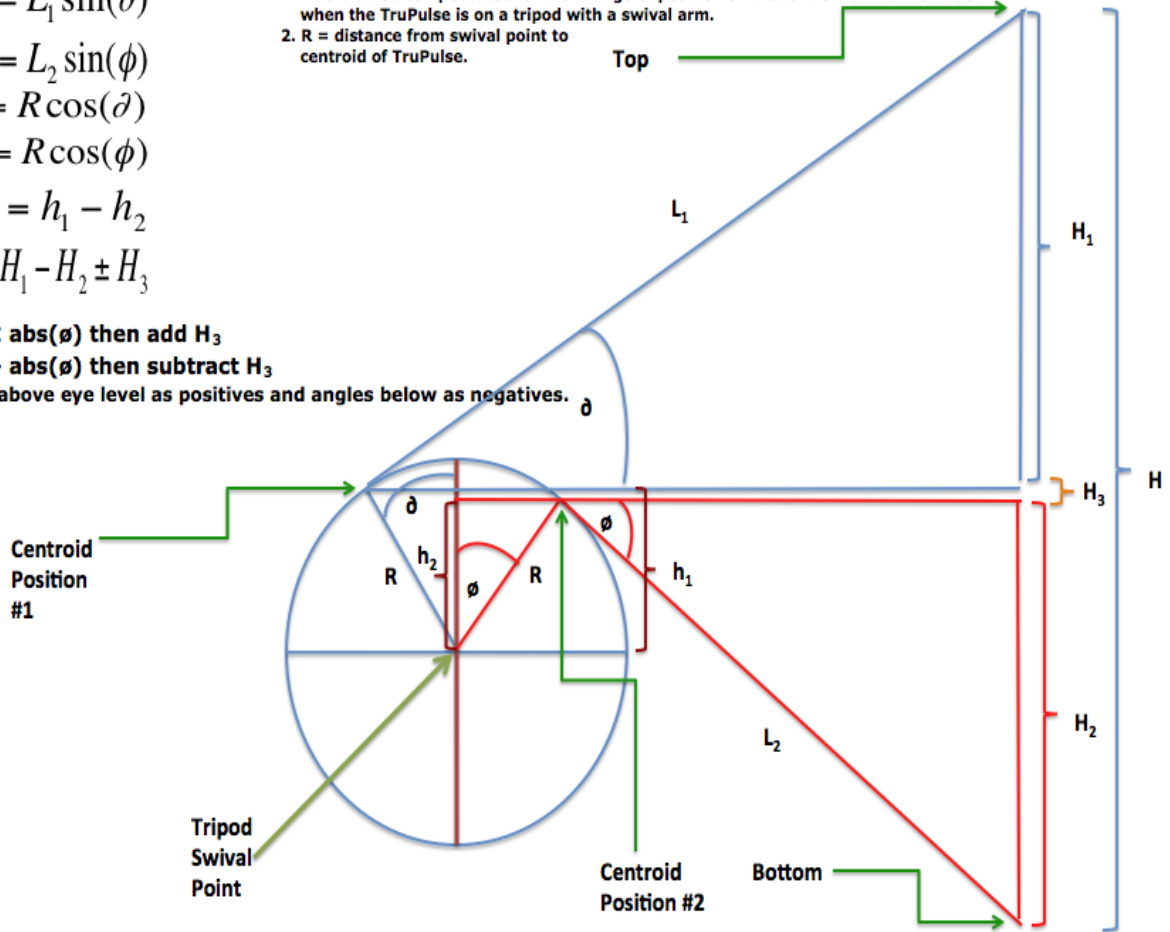
$$H = H_1 - H_2 \pm H_3$$

If  $\text{abs}(\vartheta) < \text{abs}(\phi)$  then add  $H_3$

If  $\text{abs}(\vartheta) > \text{abs}(\phi)$  then subtract  $H_3$

Enter angles above eye level as positives and angles below as negatives.

1. This method compensates for the change of position of the centroid of the TruPulse when the TruPulse is on a tripod with a swival arm.
2.  $R$  = distance from swival point to centroid of TruPulse.





## II. Accuracy Test of LTI TruPulse 200

How accurate are the instruments used to measure trees? The LTI TruPulse 200 and 360 were exhaustively tested for accuracy of the laser. The following table shows a typical result. For each target, the point of distance reading change over in the viewfinder was first identified. The distance at that point was then independently measured with a Bosch GLR825 accurate to approximately 1.5 millimeters. As can be seen in the table, the average difference between the Bosch and TruPulse 200 was 1.96 inches. This is more accurate than advertised by LTI.

Test of laser-measured distance for LTI TruPulse 200 versus Bosch GLR825/GLM80							
No.	Target	Location	Bosch	TP200	Diff-ft	Diff -in	
1	Yellow disk	Outdoors	38.0200	38.0	0.02	0.24	
2	Yellow disk	Outdoors	46.7250	47.0	0.27	3.30	
3	Yellow disk	Outdoors	57.0050	57.0	0.01	0.06	
4	Yellow disk	Outdoors	59.8100	60.0	0.19	2.28	
5	Calendar	Indoors	30.0100	30.0	0.01	0.12	
6	Calendar	Indoors	24.8960	25.0	0.10	1.25	
7	Tree trunk	Outdoors	55.5550	55.5	0.05	0.66	
8	Tree trunk	Outdoors	156.7200	157.0	0.28	3.36	
9	Tree trunk	Outdoors	163.9000	164.0	0.10	1.20	
10	Tree trunk	Outdoors	165.8250	166.0	0.18	2.10	
11	Tree trunk	Outdoors	176.8800	177.0	0.12	1.44	
12	Tree trunk	Outdoors	202.2250	202.0	0.22	2.70	
13	Building	Outdoors	169.0350	169.0	0.03	0.42	
14	Tree trunk	Outdoors	220.4200	221.0	0.58	6.96	
15	Tree trunk	Outdoors	224.5650	225.0	0.44	5.22	
16	Tree trunk	Outdoors	131.0100	131.0	0.01	0.12	
17	Tree trunk	Outdoors	153.4250	153.5	0.07	0.90	
18	Tree trunk	Outdoors	169.8400	170.0	0.16	1.92	
19	Tree trunk	Outdoors	264.0400	264.5	0.46	5.52	
20	Tree trunk	Outdoors	202.9100	203.0	0.09	1.08	
21	Yellow disk	Indoors	17.5430	17.5	0.04	0.52	
22	Yellow disk	Indoors	20.1100	20.0	0.11	1.32	
23	Yellow disk	Indoors	24.0490	24.0	0.05	0.59	
24	Yellow disk	Indoors	25.0540	25.0	0.05	0.65	
25	License Plate	Outdoors	28.7400	28.6	0.16	1.92	
26	Yellow disk	Outdoors	57.8200	57.5	0.32	3.84	
27	Yellow disk	Outdoors	17.8230	18.0	0.18	2.12	
28	Yellow disk	Outdoors	89.8500	90.0	0.15	1.80	
29	Yellow disk	Outdoors	105.8400	106.0	0.16	1.92	
30	Yellow disk	Outdoors	119.8250	120.0	0.17	2.10	
31	Yellow disk	Outdoors	133.8050	134.0	0.19	2.34	
32	Tree trunk	Outdoors	33.0950	33.0	0.09	1.14	
33	Tree trunk	Outdoors	104.4600	104.5	0.04	0.48	
34	Tree trunk	Outdoors	110.1500	110.0	0.15	1.80	
35	Tree trunk	Outdoors	123.9350	124.0	0.06	0.78	
36	Tree trunk	Outdoors	147.7000	148.0	0.30	3.60	
37	Tree trunk	Outdoors	88.0000	88.0	0.01	0.12	
38	Tree trunk	Outdoors	141.0550	141.0	0.06	0.66	
39	Tree trunk	Outdoors	96.2900	96.0	0.29	3.48	
40	Tree trunk	Outdoors	124.4700	125.0	0.53	6.36	
			<b>Average</b>	<b>Feet ==&gt;</b>	<b>0.16</b>	<b>1.96</b>	<b>&lt;== inches</b>

### III. Exceptional Trees of Mohawk Trail State Forest

We conclude with a summary of exceptional trees in Mohawk Trail State Forest as determined by NTS measurements. History books and newspaper and magazine articles give accounts of huge trees across the New England landscape in pre-colonial times, and they no doubt occurred. However, we'll never know how large, tall, and old they actually were. We can know with great accuracy what grows today, and we do have some exceptional forests in the Northeast. One of the most exceptional is the forest chosen for this workshop, Mohawk Trail State Forest. The white pines of Mohawk are the flagship tall trees of New England. The following table lists 300 trees that have been measured in Mohawk. So far as we know, the top 3 categories have been completely covered. There are probably at least 160 pines between 140 and 149.9 feet in height. There are many between 130 and 139.9.

White pines measured in MTSF since Oct 2009								
Grove/Area	Complete coverage --- >			Limited coverage ----- >			Total	Individually Tallest
	>=170	160-169.9	150-159.9	140-149.9	130-139.9	120-129.9		
Trees of Peace	1	2	17	7	2	1	<b>30</b>	171.0
Elders		3	11	5	1	2	<b>22</b>	167.0
Algonquin		3	14	8	2		<b>27</b>	163.8
ENTS Grove		1	22	11		1	<b>35</b>	163.0
Pocumtuck		2	18	37	9		<b>66</b>	161.0
Shunpike		1	5	2	2		<b>10</b>	160.2
Trees of Peace - Mast Area		1	5	5			<b>11</b>	160.1
Trees of Peace - Rachael		0	7	1			<b>8</b>	154.4
Tuscarora		0	1	5	2		<b>8</b>	153.1
Cherokee-Choctaw		0	6	6	1		<b>13</b>	152.7
Trout Brook		0	5	11	3	1	<b>20</b>	152.6

Campground		0	2	2		4	<b>8</b>	152.3
Encampment		0	2	4		2	<b>8</b>	152.3
Cold River		0	1	7			<b>8</b>	150.7
Headquarters Hill		0	0	8			<b>8</b>	147.9
Frog Pond		0	0	6			<b>6</b>	147.5
Headquarters		0	0	3	2		<b>5</b>	146.0
Indian Springs		0	0	3	1	1	<b>5</b>	144.6
Todd Mountain		0	0		2		<b>2</b>	137.0
<b>Total</b>	<b>1</b>	<b>13</b>	<b>116</b>	<b>131</b>	<b>27</b>	<b>12</b>	<b>300</b>	
<b>Total &gt;= 150</b>	<b>130</b>							



## [Bushwhack Hits Paydirt, CA](#)

by **M.W.Taylor** » Sun Oct 07, 2012 1:50 pm

Last weekend I returned to the forest of the tallest known sugar pine with friends John and Ben to further explore the "hot zone". The "hot zone" is a series of well protected benches, meadows and gullies in Yosemite National Park. The terrain was mostly rolling hill type with a few flat bottomland areas.

Here are the trees we found:

Ht	Species	Location
273'	douglas fir	Yosemite National Park
264'	sugar pine	YNP
261'	sugar pine	YNP
258'	sugar pine	YNP
256'	sugar pine	YNP
255'	sugar pine	YNP
253'	ponderosa	YNP
251'	sugar pine	YNP

The 273' douglas fir is the 2nd tallest known tree of the sierras beside giant sequoia.

The 264' (80.4m) "Sugar Tower" puts the species back into the 80m club. The Yosemite Giant was the tallest known sugar pine and only one known to be over 80m but it died a few years ago. It has likely fallen over or lost its top by now.

I think eventually we will locate a 270' class sugar pine but it will require a lot of searching. An aerial survey might be necessary.

Michael Taylor

WNTS VP  
California Big Trees Coordinator  
<http://www.landmarktrees.net>



the three of us under the "Sugar Tower"



John below the tallest known sugar pine at 264 feet. After you get above the root swell on the "Sugar Tower", the trunk is cylindrical and very high to the first branch.

## [Re: Bushwhack Hits Paydirt](#)

by **dbhguru** » Sun Oct 07, 2012 9:46 pm

Michael Totally awesome! You've smoked the rest of us! Can you list the trees that you've either found alone or with friends or confirmed for others that are the tallest of their species?

NTS, I propose a new list that shows the tallest member of each species that we know about and who made the discovery, who made the initial measurement, and who made the latest measurement. Dates of discovery, initial measurement, and latest measurement would be great. Minimal location information. I'd be happy to keep the data if people will send me the raw information. If this idea catches on, we could expand it to the state level.

Robert T. Leverett

## [Re: Bushwhack Hits Paydirt](#)

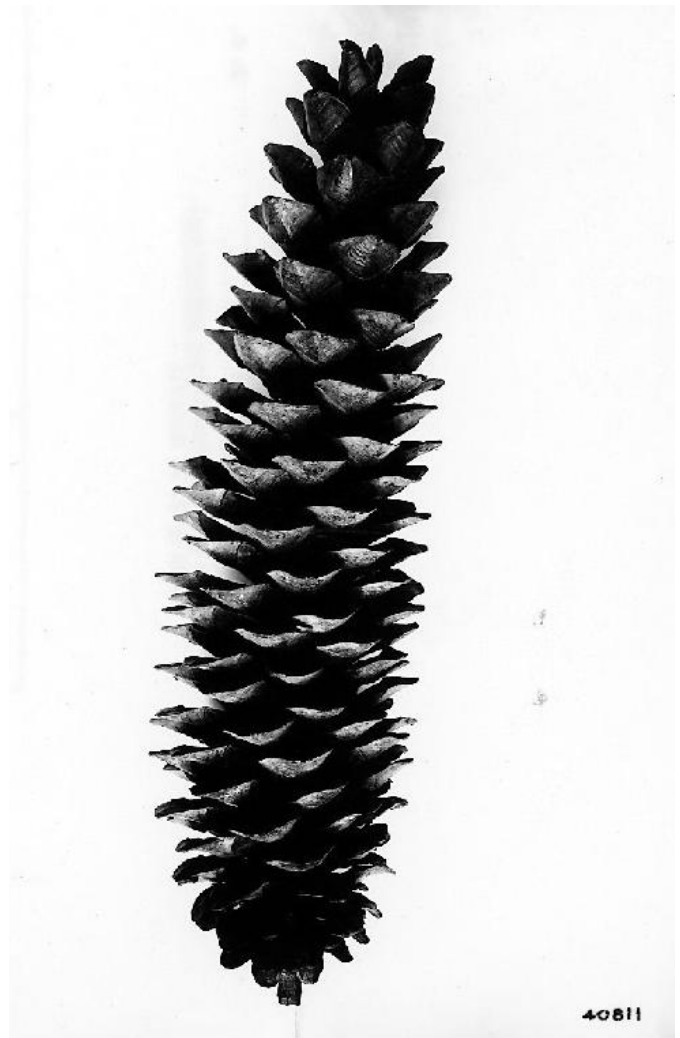
by **M.W.Taylor** » Mon Oct 08, 2012 6:13 pm

Bob, I can't remember all the tall trees I have found but at some point I'll make a list for you. My first focus was 350'+ redwoods. I know I found at least 120 of them alone or with others. After the LiDAR found all the rest of the tallest (350'+) redwoods I shifted my focus to the tallest firs and pines. The 80m+ species is still quite elusive. Red Fir is now my new focus. I want to locate an 80m+ red fir. Tallest known today is 252' or 76m.

Typically I explore the forests alone. But when I find a nice chunk of forest with multiple tall trees in a concentrated area (a hot zone) then I usually invite others to help me mop the place up. The extra set of eyes makes it more likely we'll not miss anything during the search and also I like to see the look on other tree hunter's faces when they find a new height champion. I like to share the excitement and thrill of new discovery.

When I explore, I usually do not find any champions. But this time I led other explorers in to a really juicy pine forest. I doubt 264' is the tallest sugar pine in the "YNP-Hot Zone"

Michael Taylor



Sugar Pine Cone

G.B. Sudworth. Provided by [National Agricultural Library](#). Originally from [US Forest Service](#). 1927.

G.B. Sudworth @ USDA-NRCS PLANTS Database

## [Evaluation of Laser Rangefinders](#)

▣ by **KoutaR** » Fri Oct 05, 2012 7:57 am

NTS, There is a laser rangefinder comparison here:

<http://www.fs.fed.us/eng/pubs/pdf/10191803.pdf>

Thanks to Karlheinz for finding and telling me about it!

Kouta Rasanen

## [Re: Evaluation of Laser Rangefinders](#)

▣ by **dbhguru** » Fri Oct 05, 2012 9:55 am

Joe, Kouta, et al, I've read through the laser test report and find it valuable. I am puzzled at why they chose the HD (horizontal distance) return from the products tested if what they were testing the accuracy of the laser to measure distance to the target. The SD mode would have been more appropriate for that since the tilt sensor must be used to get an HD return, and tilt sensors (degrees in the vertical plane) tend to be less accurate than the laser distance measurements. Nonetheless, for comparative purposes, the tests are useful. I'll have more comments on the tests and what one might glean from them later.

There are several kinds of tests that I conduct. Type 1 test is under "laboratory conditions", i.e. a highly controlled test environment to check the accuracy of either the laser, tilt sensor, or the combination. Type 2 test checks the accuracy of either the laser, tilt sensor, or the combination in ordinary field use and for a variety of target types. Type 3 test looks to find patterns for a particular instrument such as weakness at certain distances or lighting conditions. Type 4 test looks to find ways to get the most out of an instrument for the range of field conditions one encounters. This last class of test is much more

involved and takes into consideration what has been learned from the other type tests. It takes into consideration all the field challenges one encounters, e.g. clutter, greater distances, changing light conditions, distinct/indistinct target construction, etc. If you are going to own a \$1,700 instrument, how do you get the most out of it?

Robert Leverett

## [Re: Evaluation of Laser Rangefinders](#)

▣ by **KoutaR** » Sat Oct 06, 2012 2:12 am

*dbhguru wrote: With a three-point hypsometer such as built-into the TruPulses and Nikon Forestry 550, you shoot to the trunk, take the angle to the top, followed by angle to the bottom, and then the hypsometer gives the result.*

Joe & Bob, A small correction: Nikon Forestry 550 does not have a three-point hypsometer function, but its successor Nikon Forestry Pro does.

I agree with Bob that they should have tested SDs and tilt sensors separately. I guess the reason for choosing the HD is that distances are easy to verify with a measuring tape but angles much more difficult.

Bob, I remember I have read your rangefinder comparisons on the ENTS-BBS or on the old Google Group, but I cannot find them now. Could you provide some links here?

Kouta Rasanen

## Re: Evaluation of Laser Rangefinders

□ by **M.W.Taylor** » Tue Oct 09, 2012 12:56 pm

The biggest problem I see with these forestry lasers such as Trupulse, Impulse and Nikon 550 Forestry is the manual itself. When used NOT according to the manual you can get excellent height estimates. However if you follow the manual instructions for the Ht-Subroutine you might get dismal results. This would especially be the case if you are close to the tree and it's a tall one and you are taking the Hd component to the edge of the trunk.

The LTI Impulse and Trupulse series and also Nikon 550 manuals show their corresponding height function diagrams where you are taking the baseline (the horizontal distance) to the trunk in one of the three inputs. This is all wrong. This Hd measurement should be taken to the top leader of the tree, not the trunk. To shoot any part of the trunk for the Hd component is to assume the top is directly above the trunk's edge. In most cases with trees the top overhangs the trunk's edge and you will over-estimate.

Why not just take the Vertical distance component from the Nikon's side display to the top and then base (internally computed with the Sine method) and add them together ? This is only a two step measurement, not three like the Ht-Subroutine, and you get better height estimates due to lean of tree already being calculated.

If you are close to the tree and the tree is tall you will get extreme height over-estimation with the Ht-Subroutine when used according to the manual.

Below is a recent case study of BLM foresters who claim to have found the tallest douglas fir in Oregon recently. (They shoot the side of 250'+ trees from 120 feet away while using the Height subroutine and get 70+ degree angles).

When you shoot a tall douglas fir from 120' away you are hitting side leaders, not the top. These side leaders over-hang in almost all cases, sometimes by 20-30 feet or more. This means your baseline is 20-

30+ feet over-estimated at 120' away. The error here is potentially gargantuan!

In 2011, a group of BLM contract foresters claim to have found a 334' douglas fir in Coos County Oregon..measured it from two sides and got similar figures of 334 feet.

During measurement, they were 120 feet away and the tree was 334' tall. This means their angle to the top was over 70 degrees !

At high angles, the tangent function goes parabolic so any angle error is amplified exponentially. Just get out a calculator to see what I mean.

$$\text{Tan}(70 \text{ degrees}) * 120 \text{ ft} \approx 329 \text{ ft}$$

$$\text{Tan}(71 \text{ degrees}) * 120 \text{ ft} \approx 348 \text{ ft}$$

at lower angles the changes decrease rapidly.

$$\text{Tan}(40) * 120 \approx 100 \text{ ft}$$

$$\text{Tan}(41) * 120 \approx 104 \text{ ft}$$

The 334 ft douglas fir claimed by BLM foresters was actually about 274 ft tall. They were off by over 50 Ft using the best forestry laser in the world, the Impulse200LR. The problem is they followed the manual. They hit over-hanging leaders and assumed they were hitting the top. And they assumed the top was directly over-head the trunk's edge.

$$\text{Tan}(70) * 100 = 274 \text{ ft}$$

That 20 foot base-line error ended up turning into a height over-estimate of 60 feet !

Michael Taylor

WNTS VP  
California Big Trees Coordinator  
<http://www.landmarktrees.net>

## [Re: Evaluation of Laser Rangefinders](#)

▣ by **dbhguru** » Tue Oct 09, 2012 3:35 pm

Michael, Good discussion. We've made these same points many, many times in the past. What forever surprises me is why the shortcomings of the 3-point tangent method that is built into the hypsometers and the potential disaster of short baselines for tall trees is not readily apparent to timber professionals, be they field foresters, loggers, timber cruisers, forestry academics, etc. What are they looking at? They can move back from a tall tree, same as we can, keeping their eye on what they might have first thought to be the top and see if it is, in fact is, or the extension of a limb or branch in their direction. It isn't rocket science.

I think the mental image of a tree as basically a trunk with some fuzz at the top is so ingrained that it overrides what would otherwise be obvious. I'm pretty sure that there are plenty of foresters out there who do get it, but can't do much about the lethargy. Unfortunately, the laser manufacturers bought the shortcuts, and now we in NTS have a steeper hill to climb. It is what our advanced tree-measuring workshops are all about. However, to put the situation into perspective, there are probably ten million other examples of such professional myopia. I'm sure other professions could contribute examples of the institutionalized dumbing down of their measurement procedures for the sake of expediency.

Robert T. Leverett

## [Re: Washington Grove City Park, NY](#)

▣ by **greif** » Thu Oct 04, 2012 12:44 am

RE: possible old growth , Rochester NY area  
I forgot, I have some photos of the Powder Mills Park area I am talking about in the previous post at: [http://www.powdermillspark.com/bigtreea ... index.html](http://www.powdermillspark.com/bigtreea...index.html)

The hilltop/ravine area has 3 or so oaks around 4- 4.5 ft dia, lots of 2 and 3 ft diameter oaks.

Gary Reif

## [Re: Washington Grove City Park, NY](#)

▣ by **tomhoward** » Thu Oct 04, 2012 7:59 pm

Gary, Ever since you posted about the oak grove in Powder Mills Park in 2009, I've been wondering about that site. It looks like an old growth oak grove, a forest type that is extremely rare in upstate NY.

Thank you very much for reviving this topic on the Bulletin Board. I definitely want to come out there, and see this grove. From your description this is old growth, and 187 years (the ring count you got on a cross-section from a fallen oak) is an old growth age in both the Syracuse area (where I live) and the Rochester area. I'd like to get out there this fall, but I don't have a car, so I'll probably take a bus to Rochester. I'll be out of town this weekend, so I'll call you next week. Thank you for giving me your number.

Tom Howard



## [Re: NTS Partnerships](#)

by **tsharp** » Wed Oct 10, 2012 10:08 am

Bob, NTS:

Some of agencies I have interacted with on tree measurement include the following:

Ohio River Islands National Wildlife Refuge  
North Bend State Park  
New River Gorge National River  
Gauley River National Recreational Area  
Monongahela National Forest  
WV Nature Conservancy  
City of Parkersburg-Parks  
City of Vienna- Parks  
Blennerhassett State Historical Park

Turner Sharp

## [Cathedral Pines of 7th Lake, NY](#)

by **tomhoward** » Wed Oct 10, 2012 7:29 pm

NTS, On the cold mostly cloudy afternoon of Oct. 6, 2012, some friends and I explored this glorious old growth grove. I spent the weekend of Oct.6-7 with them at their place in Old Forge. Cathedral Pines is on the left side of NY 28 east of Inlet – a beautiful drive from Old Forge with views of lakes (the Fulton Chain of Lakes) with pine-clad shores, past an island in 7th Lake with old windswept White Pines (that Bob Leverett photographed in 2011).

From the west on NY 28 Cathedral Pines is an awesome sight of about 12 sky-piercingly tall massive rough-barked windswept White Pines soaring high above a hilltop, these great old Pines easily 50-80 ft. above the surrounding forest canopy. Cathedral Pines is a small grove with most of the big trees covering only about an acre of the grove that covers at most 3 acres. We spent an enchanting hour and a half exploring the Pines. A most wonderful fragrance of Pine mingled with the freshness of wet newly fallen hardwood leaves permeated the air. The

ground was carpeted with freshly fallen brown needles from the towering ancient White Pines. The White Pines are a magnificent sight, with rugged trunks rising 60 ft. or more to first branches. Their massive trunks have little taper, and all 12 of these great densely packed White Pines average 40"-50" dbh. Since it had stopped raining a few hours before, the ground was slippery, and the uneven terrain was a little too treacherous for stretching the "D" tape around the trees to do measurements. But I did (with the enthusiastic assistance of my friends) do some heights measurements using the NTS method. Some of these shots were straight up shots so heights are "not less than". I could find only a few level spots where I could sight the trees from base to top, and, since I could not see the tops of the trees, the heights listed below are lower than the actual heights of the trees.

All heights are in feet.

White Pine straight up shot	129+
White Pine	112.8+
White Pine	104+
White Pine	130+
White Pine	117.9+

All these White Pines are massive, over 40" dbh, and up to 300 years old.

We also saw the monument to Lt. Blue, shot down over France in 1944, next to the broken snag stump of what used to be the grove's biggest tree; we found the log of this tree stretched out for a long ways along the ground.

We noticed a tall battered and solitary White Pine across NY 28 from Cathedral Pines. I got a good shot to the tree's top, but I could not see the base (I got a distance of from 58-78 yards into the brush near the tree's base with the 78 yard figure the most accurate - the top of the tree was 99.5 yards from my eye level). It is a very tall tree and I got a height of roughly 140-143 ft.

I also measured a very tall (for the species) slender Balsam Fir in the lower part of Cathedral Pines to a height of 85.6 ft.

In a swampy area to the west of Cathedral Pine is a tall Red Spruce – I got an estimated height of about 100 ft. on this tree, not being able to see the base.

Trees of Cathedral Pines:

Dominant: White Pine

Associate: Hemlock, Red Spruce, Balsam Fir, Beech, Sugar Maple, Red Maple, Striped Maple (Sidney was enchanted with the large yellow Striped Maple leaves)

On Sun. Oct. 7, 2012, we went to Raquette Lake, and explored the magnificent old growth Raquette Lake Red Pines (see report on this grove); since Cathedral Pines is on the route to Raquette Lake, we passed Cathedral Pines twice, first on our way out of Old Forge, and then on our way back to Old Forge.

Tom Howard

## [Raquette Lake Red Pines, NY](#)

by **tomhoward** » Wed Oct 10, 2012 7:36 pm

NTS, My friends from Old Forge and I explored this beautiful old growth grove Sun. Oct. 7, 2012, a cold windy day with increasing clouds, but with some glorious autumn sun. The Red Pines have reddish artistically beautiful platy bark composed of jigsaw puzzle-like scales, and this platy bark has a papery feel. When the sun came out, streams of silvery light shot out from the long needles of the Red Pines, illuminating the grove. Most of the Red Pines (and there are possibly 100 or more on the slope above Raquette Lake's marshy South Inlet) seem to be about 150 years old, but a few of the trees near the bottom of the slope look far older with smoother bark, twisted crowns, and one of these older-looking trees has a prominent fire scar. Mixed in with the Red Pines and on top of the hill above them are several much larger White Pines (over 40" dbh and up to 120 ft. tall), and these White Pines are about 200 years old. The ground was covered with freshly-fallen brown pine needles; old growth pit and mound topography is highly developed, more than in most sites I've been to. We all loved this grove, and we spent possibly 2 hours exploring it. We got some

good height measurements with the NTS method (use of sine function, etc.) as we had clear sight lines from base to top on several trees.

Trees measured (all heights in feet):

Red Pine	97.9
Red Pine	90+ (couldn't see base but got close)
Red Pine	104.8 – rising out of hollow
Red Pine	105.6 – rising out of hollow, slender tree, tallest Red Pine - found by the 10-year-old daughter of my friends, who has the makings of a future ent
Red Pine	94.4 – on hill
Red Pine	94.7 – old gnarled tree near slope bottom – could this be the 320-350-year-old Red Pine cored by Neil Pederson? Next to it is the old Red Pine with the fire scar.
Red Pine	94.1

Most Red Pines in this stand seem to be about 90-97 ft. tall. The 105.6 ft. tree Sidney found seems to be the tallest Red Pine.

Red Pine	20.9" dbh
Red Pine	21.5" dbh – typical diameter of big ones

White Pine	111.8
White Pine	119.5 – tallest tree measured

Age data (all White Pine):  
log cross-section from high in crown 140 rings, 11" radius  
Some people made a campfire pit, and carved chairs out of a fallen White Pine log – I counted about 180 rings on one of the makeshift chairs, 9" radius.

Dominant Trees: Red Pine, White Pine  
Associate: Balsam Fir, Red Spruce, Hemlock, White Cedar (mixed in with Red Pines, small, not over 50-60 ft. tall), Red Maple, Sugar Maple, Striped Maple, Paper Birch, Quaking Aspen, Bigtooth Aspen (these last 3 near edge by NY 28)

Tom Howard

## [Re: Raquette Lake Red Pines, NY](#)

by Neil » Wed Oct 17, 2012 8:47 am

it could be the same tree, Tom. It has been years since I sampled in that stand. David Barclay of SUNY Cortland also sampled that stand and got the same ages we did. I can finally confirm the ages: of 20 red pine I cored, all but one essentially date to the late 1840s at coring height, ~1 m above the forest floor. The oldest tree dates to 1644.

That is a really cool stand, huh Tom?

Neil Pederson

## [Holland Patent Cemetery, NY](#)

by tomhoward » Sat Oct 09, 2010 8:34 pm

ENTS,

Holland Patent Cemetery, Holland Patent, Oneida County, NY

Jack Howard and I made 2 visits to this idyllic old cemetery which has been in operation since about 1791. What follows is the report from the first visit on 9/11/2005:

In the midst of this cemetery is the largest White Pine yet seen in central NY, a mostly open-grown tree with a huge trunk supporting 5 great ascending limbs – it's the largest White Pine I've yet seen in NY. The tree (in 2005) has a dbh of 57" or cbh of 14.9 ft. The lowest branches are about 20 ft. up and I looked at the stump of one of these branches and estimated about 80 rather wide rings – this could give the tree an age of 200-250 years. Even the smallest branches have rough bark which on White Pine is a sign of aging. We were awed by this great pine; in fact, I have only seen 2 White Pines larger than this in my entire life –

a tree on Vermont Rt. 313 (southwest part of state) in 1974 over 6 ft. dbh and with a plaque saying it was the model for the VT State Seal of 1798; the

tree had fallen before 1978

a White Pine on Rt. 213 on the central Maine coast which we measured at 15'3" cbh in Aug. 1970; another great White Pine measured in Aug. 1970 on old U.S. 1 near Nobleboro, ME had cbh of 14'5" – all these immense New England pines were open-grown.

The Holland Patent White Pine appeared to be 85-90 ft. tall – I paced its shadow (in early afternoon sun) to 93 paces, so I assumed it was under 100 ft. tall. As will be seen, I vastly underestimated the tree's height.

Some old gravestones (dated back to 1802 or earlier):

- 1 to right of great Pine – Mary E. Easland d. Oct. 24, 1844 – age 11 yrs., 3 months
- 2 Samuel Church d. Nov. 30, 1842 age 83 yrs., 5 months, "A Patriot of the Revolution"
- 3 Joseph Holstead DAR monument 1903 d. Feb. 13, 1845 age 86 yrs.
- 4 Simeon Willard Soldier of Revolution d. 124 age 80 yrs.
- 5 Pascal C. I. De Angelis age 75 yrs. d. Sept. 8, 1839 Rev. War soldier DAR, "Thanks be to God who giveth the victory through Lord Jesus Christ"
- 6 Marie Le Moyne de Fayole 1739-1802
- 7 Charles Le Moyne De Angelis 1815? – 1903?
- 8 "In memory of Mr. John Woodbridge who was killed by the fall of a Tree – May 10, 1804 Age 22 (?) We mourn the sudden swift remorse from each & all enjoyment here when Christ commands we must obey without a mourmour or a. tear" ("s" looks like "f")
- 9 Seth Johnson of City of NY Merchant b. Middleton CT Nov. 28, 1767 died while on a visit to this place Dec. 8, 1802
- 10 Amos L. Hubbard age 12 d. Nov. 8, 1806
- 11 Mary Conde D. Apr. 29, 1806 11 yrs. old
- 12 Roderick Hopkins d. Nov. 3, 1841 age 84 yrs. "He was a Soldier of Christ and Patriot of the Revolution" Also measured thorny Honeylocust 39" dbh (10.2 ft. cbh)

In the Local History and Genealogy Dept. of the Onondaga County Public Library in Syracuse, NY where I work is a book on Holland Patent and an old undated picture (looks like before 1900) shows the great White Pine as a large tree.

Jack and I next visited Holland Patent Cemetery

9/25/2010 and this time I had the Forestry 550 Laser Rangefinder with me. The great White Pine was still standing but had declined in health considerably since 2005. It is still a glorious sight but it has suffered storm damage with bark peeling on some limbs, and there is a lot of damage to the base with big scars and many woodpecker holes; the huge trunk sounds hollow. I measured the trunk at 57.5" dbh (15.1 ft. cbh). The height of the pine surprised me as I got 116 ft. for the highest twig, far higher than I imagined in 2005.

I also measured a large European Larch high on the cemetery's hill at 90 ft. tall.

A grove of trees on a steep hill at the back of the cemetery surprised me as they did not look very tall. I measured a White Pine at the left edge (facing hill from cemetery) at 103 ft. tall, and 2 other not so tall-looking White Pines to the right turned out to be even taller with one farther right 117 ft. tall, and to the right of this pine, a White Pine with 2 ascending leaders (looking like 2 trees) 120 ft. and 124 ft. tall left to right – this is the tallest tree I've measured in NY so far, and the tallest White Pine I've seen in central NY. I looked at the tallest tree closely and saw that its rough-barked trunk is easily over 40" dbh. This hillside is a small secondary old growth grove dominated by tall White Pine and smaller Sugar Maple, Black Cherry.

2 European Larches just behind the tallest White Pines were 109 ft. and 106 ft.

Trees measured:

great White Pine	116 ft.	15.1 ft. cbh
European Larch	90 ft.	

On hillside:

White Pine	103 ft.
White Pine	117 ft.
White Pine	124 ft.
European Larch	109 ft.
European Larch	106 ft.

Tom Howard 10/9/2010

*Will Blozan wrote: What a great, huge tree with lots of history- thanks for the detailed report. Can you get a photo? I am wondering how a tree with ~80 fast-growing ring years on a branch 20 feet up could be*

*200-250 years old? Did I misinterpret your wording? To me, this would suggest the tree is very young, ~100 years. Just curious.*

Will, The big pine appears in an old photograph, but the age of the photo is uncertain; it could be from as late as 1930, so it is extremely possible that the tree is under 200 years old. Pines usually grow slower in our colder climate and I probably underestimated the number of rings on a branch stump 20 feet over my head. In 2005 I guessed an age of 200-250 years, but it is possible that the pine is less than 150 years old.

As far as photos are concerned, I plan on sending one soon. I do not have a digital camera; all the pictures I take are with disposable cameras and the latest pictures of the pine are still in the camera. I misplaced the pictures I took in 2005. I can convert pictures to jpegs, but I am still learning how to make them small enough for the BBS. When I figure that out, I'll be sending several pictures of the trees of central NY to the ENTS.

Tom Howard

## [Re: Holland Patent Cemetery](#)

by **Will Blozan** » Sun Oct 10, 2010 2:24 pm

Tom, I am not convinced that white pine grows more slowly "up north" than elsewhere in its range. Jess Riddle has some incredible growth rates from the Adirondacks he may post about and the ones I have been climbing in western Mass are young and HUGE. This would be a good theory to test with volume modeling of big pines of known age and similar sites throughout their range. I suspect that there will be little difference in growth rates between say NY and the s. Apps.

Will Blozan

## [Re: Holland Patent Cemetery](#)

by **tomhoward** » Mon Oct 11, 2010 9:38 am

Will, This is fascinating. White Pine is a tree I've studied most of my life and it still has its secrets, its mysteries. I'd like to see Jess Riddle's data on White Pine growth rates in the Adirondacks. White Pines here in North Syracuse grow quite slowly; pines the same age as the huge young trees in western MA are smaller here. The largest White Pine in the North Syracuse area (and the largest I've ever seen in Onondaga County), a great open-grown tree, that stood on North Syracuse Cemetery property till falling in 1979, had a cbh of 10'2" and was close to 300 years old; I counted 270 rings on a cross-section of the largest limb (couldn't count rings on the stump as it was rotten inside). It was a tree I knew from childhood, a craggy old monster with the spread of its great limbs nearly matching a height which I believed to be about 90 ft. Before the BBS was developed, I posted a picture of this tree and its environs to the ENTS site.

Any project involving the relationship of White Pine size and age is fascinating.

Tom Howard

## [Re: Holland Patent Cemetery](#)

by **gnmcmartin** » Mon Oct 11, 2010 2:52 pm

Will and Tom: White pine growth rates are a complicated subject. I agree with Will about southern and northern white pine growth rates--they can be generally similar. But there are some complicating factors, the easiest of which is site, including soils.

The really complicated part is the strain of white pine involved, and it may not be as simple as having native strains growing best in their native areas. There have been a number of provenance trials done for white pine provenances in different areas. I have

seen a few of these, but I am sorry I don't have a bibliography. And random observations in different areas can lead to some false conclusions. One problem leading to those is that white pine growing in any specific area, such as Syracuse, may not be from local seed sources, and/or if they are, local "native" seed sources may not be the best for the area. White pine seed has been commonly collected in one area and then planted in another. It is all quite complicated.

One of the complicating factors could be how an area was repopulated with white pine after the most recent glaciations--where did the new populations migrate from? In Scandanavia there is a very dramatic example of this with Norway spruce. One part had Norway spruce migrate back in from the east with a very slow growing strain, while to the west a much more robust strain coming from another direction was responsible for the repopulation. Take the more western strain and plant it to the east, and it will outgrow the native population there dramatically. So....

The most dramatic example of a non-native strain outperforming a native strain I know of is a stand near Parsons WV. Here a grove of white pine with a seed source near Asheville, NC is spectacularly outgrowing all the other white pine in the area. But just as often, a native strain will outgrow any others that can be found. One of the provenance trials done by Professor John Genys a number of years ago at UMD got that result in a Maryland trial.

So, take any observations about how any white pine is growing in any one area as more than likely meaningless as far as any general conclusions that can be drawn from it.

Gaines McMartin

## [Re: Holland Patent Cemetery](#)

▣ by **Will Blozan** » Mon Oct 11, 2010 6:03 pm

Gaines, Thanks for weighing in here. I assume- perhaps wrongly- that everyone will interpret my posts about white pine a discussion of native trees/strains. Further deliberation and study would have to focus solely on native strains- assuming we can assume that...

Many of the pines at the Biltmore Estate in Asheville, NC came from Maine via Germany in the 1890's. From what I understand they are of the "Weymouth" strain selected for mast spars. Indeed they are handsome trees very clean in bole and slowly tapered. But down here they max out around 145' whereas the native pines have been measured to 157' and far larger (again, assuming a native strain and similar age). Likewise, in the Cataloochee District of GRSM the CCC corps planted heinous white pines from an unknown to me origin. They suck. Full of large, persistent branches and poor form. In contrast the native pines on nearby slopes stand out and are easily recognized by their clean boles and towering height. I suspect the gene pool now has muddy waters...

I'm with ya on the genetics, site, and provenance thing. It does complicate things a bit.

Will Blozan

## [Re: Holland Patent Cemetery](#)

▣ by **tomhoward** » Mon Oct 11, 2010 7:54 pm

Gaines, You hit the nail on the head about the complicated subject of White Pine genetics. I agree with Will, and I also am with you on genetics, site, provenance.

It is entirely possible that the native seed source of White Pine in North Syracuse at least does not have

the best growth characteristics for the area. It's a good question where the seed source came from after glaciation.

Tom Howard

## [Re: Holland Patent Cemetery](#)

▣ by **gnmcmartin** » Mon Oct 11, 2010 8:14 pm

Will: Interesting about the Weymouth strain being planted on the Biltmore estate. I have no reason to think that the pine planted near Parsons WV is the Weymouth strain originally from Maine, but it could be. That stand was planted somewhere near 1935 and the record of the source simply says Asheville, NC, as far as I know, but I haven't seen the actual record of the source. When were the pines planted on the Biltmore estate? Would they have been old enough in 1935 to be a likely seed source? The record saying Asheville may simply refer to a Forest Service office or the sending point of the person that collected them.

But here may be one thing that could point to the Weymouth strain--these are the straightest growing damn white pines I have ever seen. I mean STRAIGHT, like they might have been turned on God's own cosmic lathe! I visited the Biltmore estate a few years ago and liked the pines there, but I don't remember being so stunned by their absolute straightness. Now maybe I was just not focusing at that point--I was there to see the house and gardens, etc. And the Parsons, WV pines seem, and I say "seem" to be a bit faster growing. Elevation at Parsons is something like 1,500', somewhat lower than Asheville and most of that area. Soil mostly bottomland along a stream--at least a very good class II site.

Anyway, I would love to have your reaction to what I am describing here--what value, if any, does my report of the straightness of these WV pines have in guessing the provenance, Biltmore/Weymouth or much broader general Asheville area? And does the date of the planting in WV answer the question?

As for reasonably large natural white pine stands, I would assume that any "pollution" from nearby individual trees, or even plantations, of some other seed origin, should be minimal. But I really don't know.

Perhaps someone has studied that kind of thing. As for what you say here: "In the Cataloochee District of GRSM the CCC corps planted heinous white pines from an unknown to me origin"--I have seen something similar in a state forest here in MD. There is one place where there are white pines that were planted in the early '40's next to some Norway spruce plantings. God, I don't know where that seed came from--they are terrible white pines, not half the size of the Norway spruce, and crooked and sick looking. No trees I have ever seen demonstrate to me the importance of having the right seed source for white pine plantings.

--Gaines McMartin

## [Re: Holland Patent Cemetery](#)

by **edfrank** » Mon Oct 11, 2010 11:34 pm

Tom, is this the right cemetery? [Yes]

<http://www.usgwararchives.net/ny/tsphoto/oneida/hollandpatent.htm>



<http://www.epodunk.com/cgi-bin/genInfo.php?locIndex=296395>

Is the tree visible on the photograph, or is it someplace else?

## [Re: Holland Patent Cemetery](#)

by **tomhoward** » Wed Oct 10, 2012 7:21 pm

NTS, On the weekend of Oct. 6-7 I traveled to Old Forge with some friends who have a house there. On our way to Old Forge on NY 365 on Sat. Oct. 6, we visited Holland Patent Cemetery where the largest White Pine in central NY grows. I used the equipment Ed Frank of NTS loaned me, along with my scientific calculator (to use sine function for NTS method) and I measured the following trees:

White Pine in grove behind cemetery 113.6 ft.  
White Pine in grove behind cemetery 120.7 ft.  
– this double-trunked tree is the tallest White Pine in central NY (on 9/25/2010 I measured the right tallest trunk to 124 ft. with Robert Henry's Forestry 550 laser rangefinder – on 10/6/2012, I got what I believe is a more accurate measurement of 120.7 ft. from this same trunk).

White Pine, the great champion tree 112.3 ft.  
57.5" dbh

As on 9/25/2010, we saw a Vulture soaring over the top of this tree. The great Pine seems to be dying, with big dead limbs in crown, but it is still hanging on to life. My friend's 10-year-old daughter found the whimsically-shaped jigsaw puzzle-like scales of rough bark on this tree to be enchanting.

Tom Howard

## [Weminuch Spruce, CO](#)

by [jamesrobertsmith](#) » Tue Oct 09, 2012 6:07 pm

Sometimes we'd walk through groves of big spruce trees. Not monsters, but nice, stout trees.

We encountered this particular grove in close proximity to this abandoned mine and miners' cabin.

For what it's worth to those who keep track of such things, this was around 11,200 feet above sea level (or thereabouts).







### [Re: Chernobyl's de facto Wilderness Area](#)

by PAwildernessadvocate » Thu Oct 04, 2012 3:11 pm



<http://www.youtube.com/watch?v=9KH29JFybz8>

### [Re: Chernobyl's de facto Wilderness Area](#)

by Joe » Fri Oct 05, 2012 4:28 pm

*jamesrobertsmith wrote: Lesson learned is: Humans suck. The Earth will recover once we're gone (or once we're reduced to a primitive state).*

I believe humans will eventually fix their damage to the Earth and get into an equilibrium with it- or, at least I think it's a possibility. It's all kinda miraculous that we've gotten as far as we have and there's no reason to think the "miracles" have ended. I don't say this in a religious sense- only that I think the cosmos is infinitely complex and holds endless possibilities including a healing of the Earth without the end of the "naked apes". This point in time may be just the very beginning of the story.... or maybe not---

Joe Zorzin

## Re: Chernobyl's de facto Wilderness Area

▣ by **JamesRobertSmith** » Sat Oct 06, 2012 12:16 pm

*Joe wrote: or maybe not---*

We're going to burn down the Earth's ecosystems as we have known them. The human-caused Sixth extinction will continue apace until we, too, are gone. It's coming and there's not a damned thing that can be done to stop it. I am wholly convinced of this fact. All you have to do is look at what has happened to Earth since I was a kid. There has been an ongoing, inexorable, and unstoppable destruction of the natural world by humans. If you think that we'll stop burning fossil fuels before the last drop of oil has been pumped out of the crust, or the last chunk of coal has

been peeled out of the rock and burnt, or the final liter of natural gas has been fracked, then you are fooling yourself. The forests will all be felled, their animal inhabitants killed and eaten; the rivers fouled beyond description; the aquifers despoiled; the soil poisoned beyond reclamation.

Sorry to be the bearer of bad news, but I have yet to see one goddamned shred of evidence that this is not the way things are going to end up.

Twenty years from now there won't be a single wild elephant. Tigers will be a fading memory. Wolves will be gone. My son will live to see the last of the great megafauna go down to extinction.

Get out in the forests and wilderness to experience the shreds of nature remaining to us. It will soon be all gone.



Fading glacier. One tiny indication of what we have done to Mother Earth.

James Robert Smith

## [Re: Chernobyl's de facto Wilderness Area](#)

by **Joe** » Sat Oct 06, 2012 1:19 pm

Life is tough stuff- some form of life and some form of ecosystem(s) will survive. Not even full scale nuclear war could destroy all life. Then, eventually, it will recover as it did after the asteroid or comet that wiped out the dinosaurs. I think humans and their descendents will be around billions of years from now- though they may be on another planet. The eternal transformation/evolution of the infinite cosmos will continue. The upcoming catastrophes will be just another chapter in the story of life on Earth.

So though it's "bad"- on a larger scale, it's just what is, another experiment on this third rock from our star. Which of course doesn't mean we shouldn't try to stop it from happening- as that's the role of some of us.

Joe Zorzin

## [Re: Chernobyl's de facto Wilderness Area](#)

by **jamesrobertsmith** » Sat Oct 06, 2012

Oh, definitely! Life will go on.

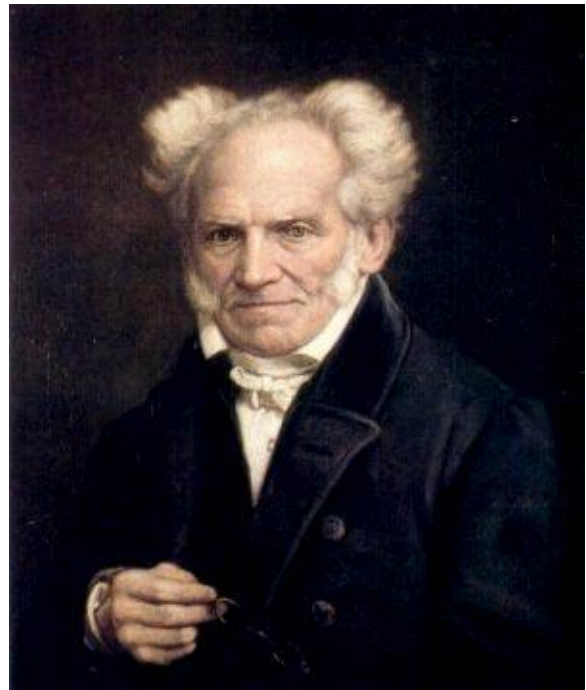
As soon as Man is shed from the system, the things that remain will flourish and diversify. I like to point out that, given time, there is no reason a pigeon cannot become a great eagle; a rat a tiger; a dog a hulking bear; a minnow a huge and stalking shark. The things we leave behind will fan out, fill the niches, and evolve.

It's just that there won't be any humans around to see Earth heal.

James Robert Smith

## [Schopenhauer and Nature](#)

by **RyanLeClair** » Wed Oct 10, 2012 8:31 pm



Painting of Arthur Schopenhauer (February 22, 1788 – September 21, 1860), German philosopher

Recently I muddled through twenty-some pages of Arthur Schopenhauer's "The World as Will and Representation"--I would have liked to have read the whole tome, but philosophical treatises have never given me great pleasure. They strike me as fascinating from afar, but once I have delved into them, I magically lose interest. Anyways, what precious little I did read had much to do with beauty--specifically, the beauty of the natural world. In Schopenhauer's worldview, there is such a thing as the Platonic Ideal. That is to say, every object in the world inspires in the viewer an idyllic representation of that object. Say one of us were to look upon an chair; immediately, our consciousness would conjure up an image of the "ideal" chair, an image synthesized from every chair we have ever seen or thought about. This is the Platonic Ideal. It is an eternal and transcendent cognition.

When we look upon a tree, so says Schopenhauer, the Platonic Ideal overwhelms our thought--we imagine

the ideal tree. In that way, the beauty of said tree is partially in the mind observing it (a la David Hume). So if Schopenhauer were still around, he would postulate that our fascination with trees actually stems (ha ha!) from the Platonic Ideal.

Schopenhauer was a pessimist through and through, indeed the first of the German Idealists to stray away from optimism. He saw the lives of mortal creatures as overwhelmingly painful and frustrating. The misery of existence, so he says, can be ameliorated by seeing the Platonic Ideal in nature; for in the Platonic Ideal we behold something transcendent. Schopenhauer was an extremely morose individual, so his view of reality might have been a little skewed.

Ryan LeClair

## [Great Old Broads Pine on Broad Brook, MA](#)

▣ by **dbhguru** » Thu Oct 11, 2012 12:06 pm

NTS, On the day before the big Oct 12th event, Dr. Joan Maloof, Monica, and I took a walk up Broad Brook behind our house to visit the huge double pine that I keep careful measurements on. On the way we saw sassafras leaves and looked up.



Here is a beauty on the forest floor. Love those leaves.



Monica and Joan next to a large white pine.



And now, the huge double. Depending on where one sets the base, the girth is between 14.8 and 15.2 feet. An average of 15.0 feet is reasonable. Now to the height. The tree has broken the 140-foot threshold. It is 140.2 feet tall. Will Blozan measured this fine tree in Oct 2007 when I was flat on my back with a bladder catheter enduring the shingles. Now the great pine joins the exclusive Connecticut River Valley of Massachusetts 140-Club. Other members include one white pine on Smith College property, one white pine in Greenfield, MA, one white pine in Mount Tom State Reservation, one tuliptree on the Mill River in Northampton, and one tulip tree in Robinson State Park, Agawam, MA. Six trees altogether, 4 pines and 2 tuliptrees. It's a pretty exclusive club, and the Great Old Broads Pine is within half of a mile of our home. Sweet!



Robert T. Leverett

**Tallest California Hardwoods Update:**

by yofoghorn » Thu Oct 11, 2012 10:58 pm

Hi everyone,

These are the most current lists of my hardwood discoveries in the past year. Does anyone know if the madrone is perhaps a world record? What is the tallest known madrone tree?

California Sycamores (*Platanus racemosa*) - 140'+  
(Updated June 2, 2012)  
Height (ft.), DBH (ft.)  
178.20', 3.93'  
169.10', 4.03'

- 164.33', 2.57'
- 156.28', 5.89'
- 155.6', 4.59'
- 154.8', 3.85'
- 150.6'
- 148.8', 2.76'
- 148.2', 2.92'
- 148.0', 6.03'
- 146.9'
- 145.7', 5.06'
- 143.4', 5.46'
- 142.7'
- 142.1'
- 141.5', 3.39'
- 140.9'
- 140.2', 5.94'

Bay Laurels (*Umbellularia californica*) - 150'+  
(Updated July 17, 2012)  
Height (ft.), DBH (ft.), Location  
165.33', 4.38', Roaring Camp  
158.87', 2.02', HCRSP  
155.5', 3.13'  
154.0, 2.71'  
150.5', 6.53'  
150.5', 1.70'  
150.0', 2.39'

Tanoaks (*Notholithocarpus densiflorus*) - 140'+  
(Updated July 14, 2012)  
Height (ft.), DBH (ft.), Location  
162.02', 2.33' - FNMSP  
158.09', 4.03' - BBRSP, large single stem  
157.3', 2.60' - FNMSP  
153.87', 2.87' - BBRSP  
150.9', 4.22' - FNMSP, triple standard  
150.5', 2.10' - Huddart County Park  
150.5', 2.79' - BBRSP  
150.0', 3.65' - FNMSP, double standard

Pacific Madrones (*Arbutus menziesii*) - 130'+  
(Updated March 13, 2012)  
Height (ft.), DBH (ft.), Location  
135.4', 2.41', FNMSP

Zane J. Moore

## [Re: Tallest California Hardwoods Update:](#)

by **M.W.Taylor** » Fri Oct 12, 2012 5:40 pm

Zane, Your rate of discovery on these tall western hardwoods is simply astounding ! Not just the rate of new discovery but also the amount of height increase between new records. For example: 50 ft increase from old height record to new height record for California sycamore (*Platanus racemosa*). Tallest known California sycamore was about 128" until you started measuring trees with laser only a few years ago.

I wish I could click the like button one time for each new record tree on the list you provided, but the system will not allow that. Thanks for the report Zane. I look forward to seeing your future postings here on NTS.

Micahel Taylor

## [Re: Tallest California Hardwoods Update:](#)

by **yofoghorn** » Sat Oct 13, 2012 12:49 pm

*Rand wrote: Zane, I noticed how skinny a lot of these trees are and wondered how intermixed with conifers they were .*

Rand, Many of these hardwood trees were found in second-growth redwood stands. All of the tanoaks, with the exception of those found in Big Basin, were in second-growth stands. The tallest three sycamores as well are in second-growth stands. Most likely these trees started when the redwoods were small and the amount of light was decent enough for the species to survive with. As the redwoods grew, the sycamores and tanoaks had to grow with them. These trees are testaments to the redwood competition factor. The madrone, in fact, is blocked by a redwood downhill and a tanoak uphill, so since curving its trunk one way or the other would not result in more light, the tree was forced to grow straight up and

compete. Trees like the sycamores would likely not get to the 260'-270' range. The tallest tanoak and sycamore trees that aren't competing with second growth redwoods were the 156.28' sycamore which grew in an alluvial flat with sycamores and bay laurels to compete with, and the 158.09' tanoak which grew in Big Basin old growth stands.

Zane J. Moore

## [Re: Tallest California Hardwoods Update:](#)

by **Don** » Sat Oct 13, 2012 3:55 pm

Zane-

According to the American Forest Big Tree Registry and CalPoly San Luis Obispo's big tree listing, the madrone point leader is:

88 feet tall, 116 foot canopy  
316 inches in girth  
433 Points

and was found in Carmel in 2004. Yours is taller if both were measured accurately!

Don Bertollette

## [Re: NTS Partnerships](#)

by **James Parton** » Fri Oct 12, 2012 1:40 am

I would say at least to a small extent the Carl Sandburg Home State Historic Site ( NC ). Will Blozan has done some work with them there and the Park manager there let me measure some trees a couple of years back in restricted areas and assisted me in doing so. She seemed very interested in ENTS work and had heard of our efforts in Congaree and GSMNP.

James E Parton

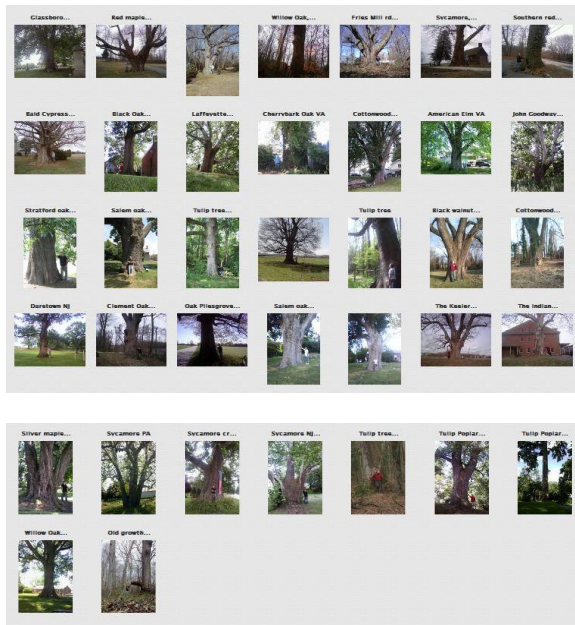
## [Big Tree hunter shares his findings...](#)

by JohnnyDJersey » Fri Oct 12, 2012 9:41 pm

Hey everyone this is my first post but I've been hunting big trees in NJ, PA, and, VA for a decade now and I wanted to share some photos of my findings. Some trees are well known but some are hidden gems and undocumented so far. Enjoy. I'm on Phtotbucket under the same name: JohnnyDJersey. Here is a link with just a few trees I've come across...

<http://s299.photobucket.com/albums/mm290/Johnnydjersey/>

John Harvey



## [Re: Big Tree hunter shares his findings...](#)

by JohnnyDJersey » Sat Oct 13, 2012 9:22 pm

Tsharp, I have measurements for all of them that I will try to post. I have a word spreadsheet listing over 100 big trees I have photographed, measurements, and thier locations. Some of the cbh are in the titles

of the photos. James, I know what your saying. A 20ft CBH tree looks alot like a regular sized tree if no one is standing next to it lol.

John Harvey

## [Re: Evaluation of Laser Rangefinders](#)

by dbhguru » Tue Oct 09, 2012 3:35 pm

Michael, Good discussion. We've made these same points many, many times in the past. What forever surprises me is why the shortcomings of the 3-point tangent method that is built into the hypsometers and the potential disaster of short baselines for tall trees is not readily apparent to timber professionals, be they field foresters, loggers, timber cruisers, forestry academics, etc. What are they looking at? They can move back from a tall tree, same as we can, keeping their eye on what they might have first thought to be the top and see if it is, in fact is, or the extension of a limb or branch in their direction. It isn't rocket science.

I think the mental image of a tree as basically a trunk with some fuzz at the top is so ingrained that it overrides what would otherwise be obvious. I'm pretty sure that there are plenty of foresters out there who do get it, but can't do much about the lethargy. Unfortunately, the laser manufacturers bought the shortcuts, and now we in NTS have a steeper hill to climb. It is what our advanced tree-measuring workshops are all about. However, to put the situation into perspective, there are probably ten million other examples of such professional myopia. I'm sure other professions could contribute examples of the institutionalized dumbing down of their measurement procedures for the sake of expediency.

Robert T. Leverett

## Re: Evaluation of Laser Rangefinders

by **Don** » Sat Oct 13, 2012 4:30 pm

Mike- as a professional forester who has worked for the USFS, the BLM, and the NPS, I can tell you that any forester graduating from an SAF accredited school knows better than to measure the height of ANY tree when seeing the clinometer read 70 degrees.

As a general rule of thumb, foresters are admonished to 'be out AT LEAST as far as the tree they're measuring is up'.

That said, I notice you said "BLM contract foresters".

My personal reflection on contracted employees is that government employees are generally superior, but underfunded and over-extended; whereas contracted employees are seldom accredited and are often overpaid (to offset the lack of benefits offered).

I can't speak to or defend contract foresters...it has perhaps more to do with the knowledge skills and abilities of the agency contracting officer/officer representative, and how the contract is written.

Joe Zorzin has asked, pointedly I'll add as I see his point, why do we need to measure tree heights so accurately. If you and I were to see a USFS/NPS/BLM contract for measuring tree heights to assess champion tree status (how cool would that be!?!?!?) we'd have reason to be measuring to the highest level of accuracy. But the average forester would get fired for taking the time to accurately measure every tree in the forest. The average tree doesn't need it.

Keep up the stellar work Mike, we all aspire to your focus and devotion to the 'dendromorphological cause' !

Don Bertollette

## Re: Evaluation of Laser Rangefinders

by **Joe** » Sat Oct 13, 2012 4:40 pm

*Don wrote: Joe Zorzin has asked, pointedly I'll add as I see his point, why do we need to measure tree heights so accurately. If you and I were to see a USFS/NPS/BLM contract for measuring tree heights to assess champion tree status (how cool would that be!?!?!?) we'd have reason to be measuring to the highest level of accuracy. But the average forester would get fired for taking the time to accurately measure every tree in the forest. The average tree doesn't need it.*

I measure, or I should say guestimate, to the nearest 8 feet. (not to the top- only to the top of the merchantable wood)

But of course that's fine enough for what I do- which is not SCIENCE- for science, it should be as accurate as scientifically possible.

Joe Zorzin

## Central Park, NYC

by **Joe** » Thu Oct 11, 2012 11:23 am

I just spent 4 days in NYC including some fine hiking in the southern half of central park. It's a wonderful place with hundreds of gorgeous elms. I know Jenny has uploaded photos and videos from the park so I'll now have to find some of her messages. I have some photos I'll upload when I get a chance.

A dynamite park surrounded by huge skyscrapers-- all rather mind blowing





pushing up bricks



sycamore (or London plane?) growing over curb



unknown species- and my Elizabeth



unknown species. Image Below: elms

Joe Zorzin



## [Re: Bushwhack Hits Paydirt](#)

by **fooman** » Sun Oct 14, 2012 4:11 am

*M.W.Taylor wrote: Don, That picture has wide angle lens distortion. After you get above the root swell on the "Sugar Tower", the trunk is cylindrical and very high to the first branch. Michael*

*Don wrote: Michael- The camera angle I'm guessing imparts more taper than there actually is...I'll bet that the bole is amazingly cylindrical with very little taper until after at least the first branch?*

*-Don*

Hi All, There are two methods for correcting for perspective distortion created by objects receding from the camera:

1. Use a camera with built in perspective control,

such as a view camera (the old-fashioned bellows type) or a camera with a perspective control lens, also known as a shift lens (see [http://en.wikipedia.org/wiki/Perspective\\_control\\_lens](http://en.wikipedia.org/wiki/Perspective_control_lens)). This method is rather expensive, as most view cameras or PC lenses are not cheap!

2. More common these days is to use image processing software to perform perspective, or keystone, correction. It can be simple manual distortion of the image, or semi-automated, using software such as Photoshop or DxO Optics - such software also use calibrated lens corrections to help correct all sorts of distortion. An example of such correction, using the freeware Gnu Image Manipulation Program (GIMP) is at <http://constantphotographer.blogspot.com/2011/07/perspective-control-with-gimp.html>.

The computer I use came with a older version of Photoshop Elements, so PC control is fairly easy. On the assumption that most of the trees are vertical

(except for the small one to the left), I just had to adjust a slider until most of the trees are vertical. This isn't perfect, as the figure at the base shows some distortion, but it does provide a better representation of the bole of the tree. See attached images.

Cheers,  
Matt Smilie

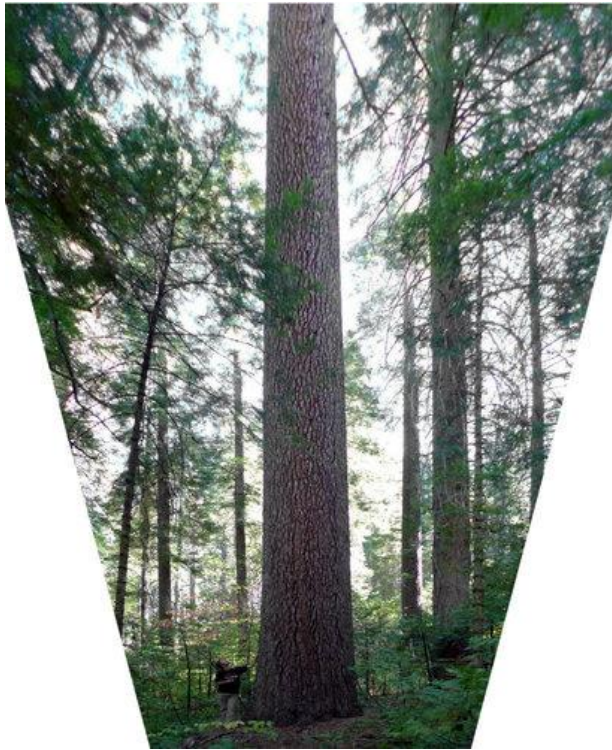


Figure 1: Perspective correction performed on image - note verticality of surrounding trees compared to the original.

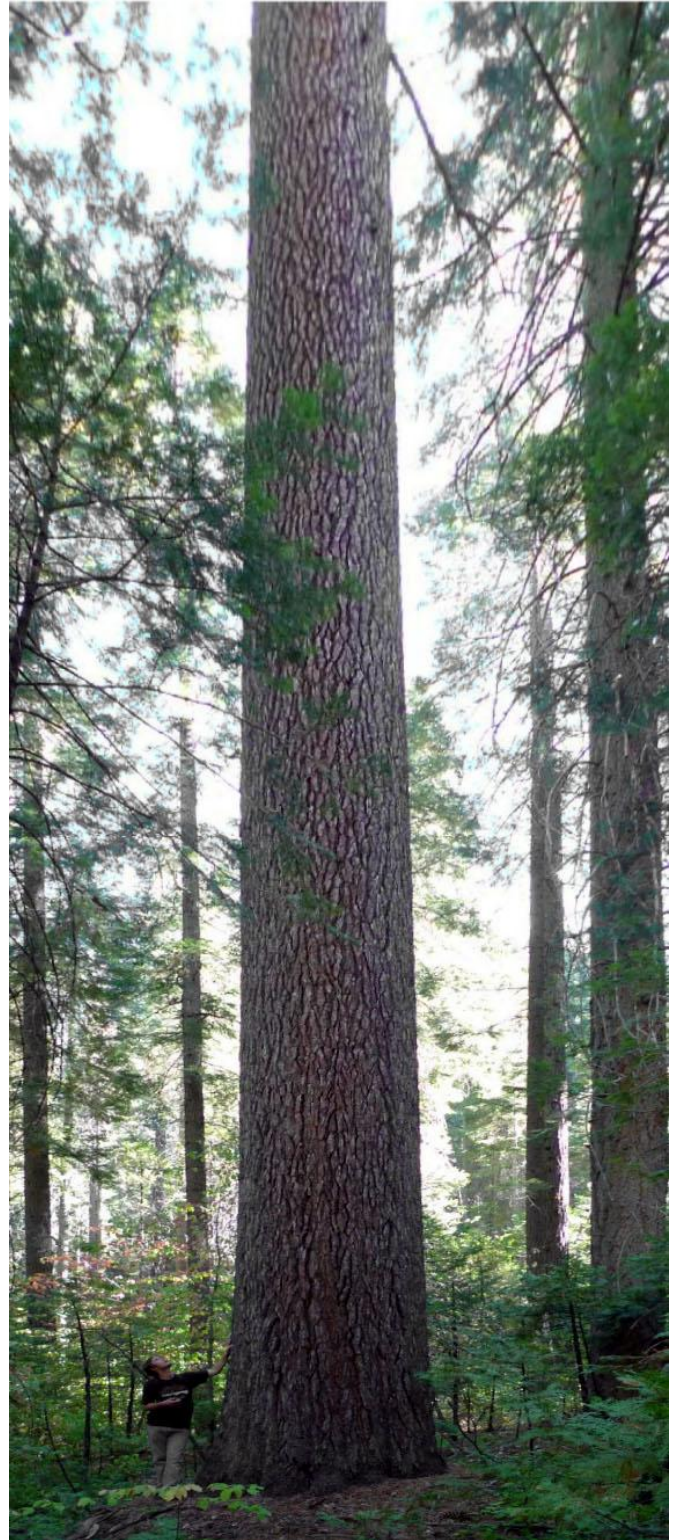


Figure 2: Corrected image, cropped.

**What kind of oaks are these? (Plus Yo Momma's Big Aspen) CO**

▣ by jamesrobertsmith » Sun Oct 14, 2012 11:40 pm

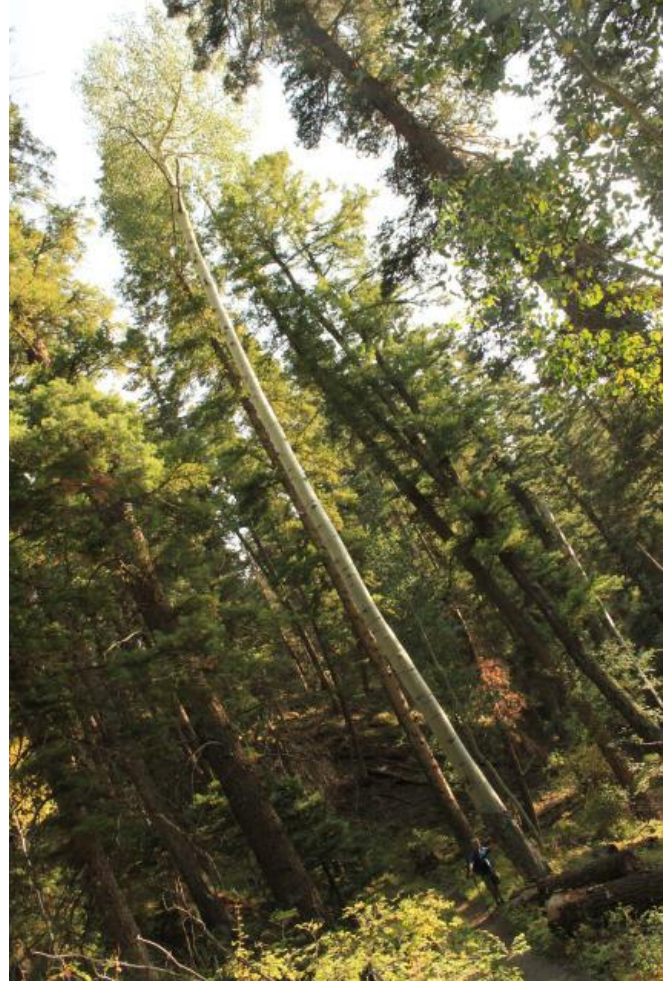
I kept running into this scrubby oak tree at various places in Colorado. Sometimes the tree would literally grow like a shrub along the ground. In other places the same tree was taller, but not very substantial anywhere I encountered it. What the heck is it?



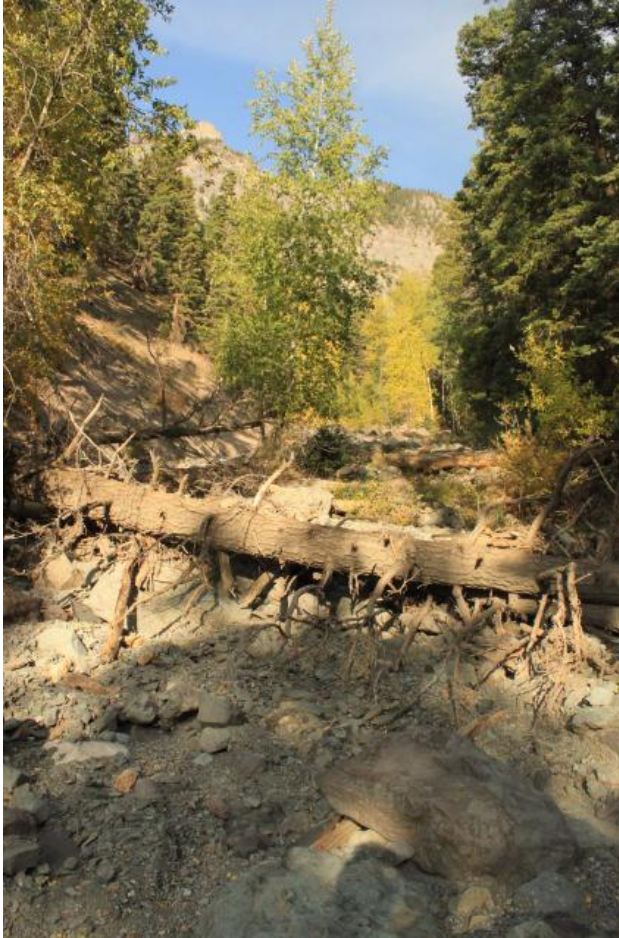
Here was the oak. This was about as large as I saw them get. This was on a trail in the Amphitheater Recreation Area above Ouray.



You want to see big aspens? Hike the trails in the Amphitheater Recreation Area! They were HUGE! I took this one of Andy Kunkle standing beside a really tall, gnarly aspen on the trail.



Here I tilted the camera to show the same tree from base to top. I couldn't back up any further to get a better perspective.



This entire vicinity is volcanic. Lots of easily eroded terrain. What was described to me as "tuff" when I was in Yellowstone. This was one of a number of mud-slide remnants we saw while hiking the area.

James Robert Smith

### [Re: What kind of oaks are these? \(Plus Yo Momma's Big Aspen\) CO](#)

by **dbhguru** » Mon Oct 15, 2012 8:38 am

Robert,

Gambel oak (*Quercus gambelii*). They are the common understory oak in the San Juans. They can form dense stands, as you saw.

Robert T. Leverett

### [Re: Height Sub-Routine No Better Than Using A Tape-Line ?](#)

by **mdvaden** » Sun Oct 14, 2012 11:42 pm

Hi Michael. I relayed what you shared about this, at the tall tree measuring presentation I did in Portland earlier this month.

<http://www.westernforestry.org/Events/p...gy-2012-2/>

Had the 3pm slot. Ha! Only one guy was falling asleep in the front row - lol - most everybody else enjoyed the topic. Anyway, wish you could have been there too, but this was a pretty low key presentation. But appreciated your feedback to help contribute.

M. D. Vaden of Oregon

### [Re: Height Sub-Routine No Better Than Using A Tape-Line ?](#)

by **dbhguru** » Mon Oct 15, 2012 11:19 am

Michael, Sharing our knowledge with BLM and FS foresters, as a group, is tricky. They have their perspective on what works, at least for them, and it is my experience that, heretofore, they have not been much interested in being persuaded otherwise. It doesn't seem to matter how much ammunition we have on our side, what discoveries or confirmations we make, or what we can clearly demonstrate to anyone with an open mind. If it were rocket science, or some esoteric subject in philosophy, it would be another matter, but we're talking about really basic trigonometry and the visually obvious geometry of different tree species growing in different habitats and what you have to do to get accurate dimensions. On their side, they have years of tradition and a whole academic-professional structure behind them, which produces a mindset. Ah yes, a mindset.

Essentially, they view the subject of tree measuring as their rice bowl, and as a consequence, they aren't

receptive to others horning in on their turf, albeit a self-proclaimed turf. Given their long ascendancy in the world of tree measuring for commercial purposes, I do understand how they must feel, but I maintain that developing the instrumentation and the methodology is largely an engineering endeavor. In truth, it should be a cooperative effort, but the forestry-engineering interface has been through the design of instruments such as hypsometers with the forestry profession specifying the measurement methodology. I knew one of the forestry side's key members who helped forge the design criteria. Thus we got the 3-point tangent method built into instruments like the Impulse and TruPulse hypsometers as 'THE' tree-measuring routine.

As you well know, for LTI instruments that feature it, the VD return of the missing line routine is a direct implementation of sine top-sine bottom, but it isn't seen as a tree-height measuring routine. I expect it will in the future, because LTI has begun to acknowledge the accuracy problems that result from blind application of the HT routine, and will likely move to increase their educational outreach. But, I predict that LTI is going to encounter institutionalized resistance and will have to find ways to thread the needle, since instrument sales are involved.

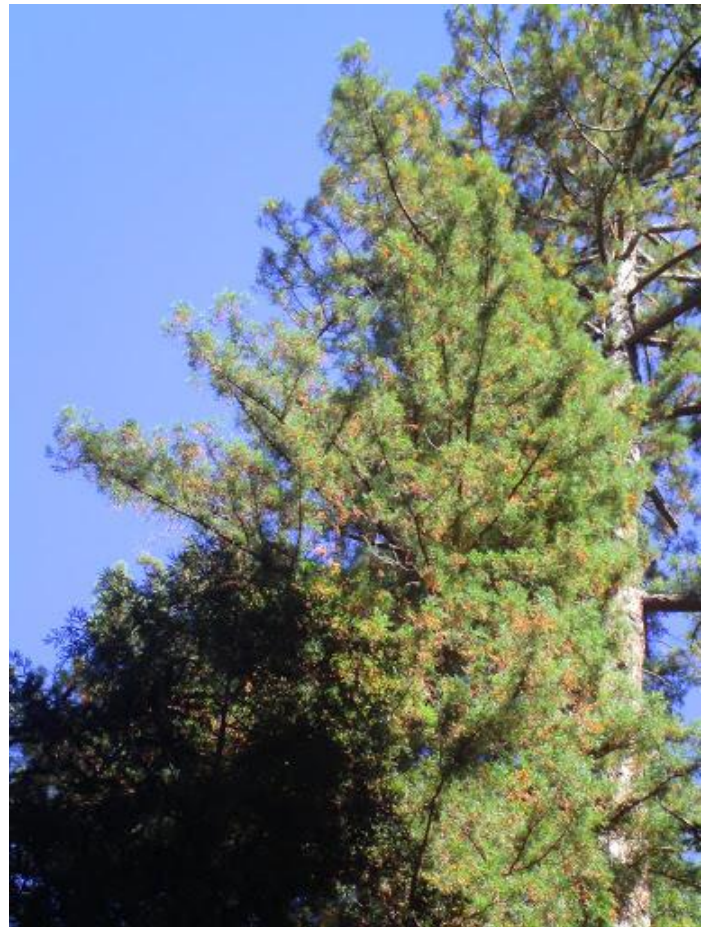
The above said, I still haven't given up on academics and the government professionals. And I am finding private consultants and foresters working for conservation groups open to what we have to share. They have a mountain of invaluable experience. We could make a heck of a team. This was demonstrated on Oct 12th. I had a very positive experience with attending foresters, and want to forge a real alliance.

In the back and forth, I don't want to lose sight of our progress.

Robert T. Leverett

## [Redwood Needle Shedding](#)

by **Mark Collins** » Mon Oct 15, 2012 9:58 pm



Today I was hiking in one of my favorite redwood parks when I noticed what seemed to be an abnormal amount of orange coloring in the canopies of the trees. At first, I thought it might be cones, but with my binoculars, I could see that it was the needles. I wasn't sure if it was the particular lighting of the day, or if I was just noticing it for the first time, but many of the trees had the same coloring. Before, I assumed redwoods shed needles throughout the year. Now it seemed reasonable to believe that the trees were shedding needles in the fall the same way they seem to grow new ones in the spring.



## [Re: Redwood Needle Shedding](#)

by **mdvaden** » Tue Oct 16, 2012 2:44 am

It's normal.

It would be more of a concern if they were not doing that.

Pines, for example, do the same thing. About this time of year, needles pop off a certain part of the branch. Shore pines hold like 2 years worth. You almost won't find a 3rd year or 4th year fascicle of needles on shore pine.

Another pine can hold foliage back 9 years worth. Then on the 10th or 11th year, that foliage sheds, leaving the stem bare.

It's a needle persistence thing. :-)

M. D. Vaden of Oregon

After looking up a little more info online, it sounded like this was normal for the redwoods to do this in the fall, especially since the rainy season has not arrived yet.



## [Other Events Surrounding the October 12th Advanced Tree Measuring Workshop](#)

by **edfrank** » Sun Oct 14, 2012 1:04 pm

Here are some photos from the events of the past week that were posted to Facebook

Any thoughts?



Broad Brook, MA - October 11, 2012



A beautiful fall day in New England. With big tree hunter Bob Leverett. Giving a talk at Smith College tonight - Joan Maloof



A beautiful fall day in New England. With big tree hunter Bob Leverett. Giving a talk at Smith College tonight. - Joan Maloof

Mohawk Trail State Forest October 13, 2012



Dedication of Mohawk Trail State Park in Massachusetts into the Network today - tall trees and cool breezes - directions on web page - Joan Maloof

William Cullen Bryant Estate - Oct. 13, 2012



A glorious day in the Rivulet Forest, William Cullen Bryant Estate, the Hampshire County MA contribution to the Network. A naming ceremony for the Mary Byrd Davis pine.



Inspiring yesterday in William Cullen Bryant Forest, western Massachusetts, with family and friends from Old Growth Forest Network, Eastern Native Tree Society, and Trustees for Reservations. We dedicated a huge old White Pine to the late old-growth forest researcher Mary Byrd Davis, my mother. - John Davis

## October 12th Advanced Tree Measuring Workshop

▣ by **dbhguru** » Sat Oct 13, 2012 5:40 pm

NTS, The October 12th Advanced Tree Measuring Workshop was held yesterday at MTSF. It was successful. Twenty-seven people attended. We began in the Nature Center where we a nice fire warmed us as a cold drizzle continued outside. We had coffee and donuts to further lift our spirits.

DCR's Dave Miller and Tim Zelazo launched the event, and after the customary greetings turned the events over to yours truly. Participating Ents included, Dale Luthringer, Carl Harting, John Eichholz, Bart Bouricius, Joe Zorzin, Joan Maloof, and yours truly. Dale and Carl had traveled from PA to help me out. Joe filmed part of the event.

Besides, Joe, a number of other forestry professionals including my friends Michele Wilson and Rex Baker were present. I met Robert Kobelia for the first time. Robert is a forester who did contract work at Suuny's Pack Forest in the Adirondacks. Not surprisingly, Robert and I know lots of the same trees, and of course, the Grandmother tree. Small world. I was pleased that Tom Kass, a lumberjack acquaintance of mine attended. I hadn't seen Tom in several years. All the timber professionals seemed to get a lot out of the workshop. It was highly gratifying.

LTI had two representatives present, including the Director of North American Sales, Steve Colburn. Steve brought plenty of TruPulses and most attendees got to use one on one or more of the trees we measured. Steve also got word from his engineers on how to further use the click-over point of the TruPulses to get a result that is dead on. I'll have more to report on this in a future post, but the information was truly exciting. All the work paid off.

With the permission of DCR, Joan Maloof dedicated MTSF as a forest in her old growth forest network at the end of the Friday event. Joan, Dale, and Carl stayed with Monica and me. We had a great time.

A distinguished attendee was Dr. Chris Queen, former Dean of Continuing Education at Harvard University. Chris's wife Alice is a pianist friend and colleague of Monica's. Chris wanted to see the big trees, and from all appearances had a very good time. But then so did everyone else.

Dale, Carl, and Joan stayed at our home and we all had a great time. But the events did not end with Friday's workshop. This morning, we dedicate the William Cullen Bryant forest as another in Joan's network, courtesy of the Trustees of Reservations. We also dedicated one of the great Bryant pines in honor of Dr. Mary Byrd Davis. Husband Bob, son John, John's wife Denise and her son Justin were all present, as was Dr. Julie Richburg, Trustees ecologist. I hadn't seen John in years. It was a great reunion. John plans to join us in Durango next summer.

After the dedication, John Eichholz and Dale Luthringer re-measured Mary's pine. It is 11.6 feet in girth and 152.9 feet tall - a worthy tree. Then I asked John and Dale to re-measure the Bryant pine. Pre-season height by my measurements was 157.7 feet. It looked like the new height was going to be a little over 159 feet, but John kept circling the tree, and before it was all over, John and Dale had confirmed a top at 162.2 feet. That's really satisfying. The Bryant Pines take their place as only one of 8 (and possibly 9) sites in the Northeast with trees of any species confirmed by NTS to heights of 160 feet or more.

I'll have more to report, but I want to thank Dale, Carl, Joan, Bart, and John for their indispensable support. Oh yes, we re-measured Jake. Another confirmation of 171.0 feet. Got 171.0 twice and 172.0 once. I think I know where I went over on the 172.0, but about 171.3 is a distinct possibility. Now that I know how to get virtually dead on accuracy with the TP200, I'll be back there measuring Jake again.

Robert T. Leverett

## [Re: October 12th Advanced Tree Measuring Workshop](#)

by **dbhguru** » Tue Oct 16, 2012 10:30 am

NTS, I just got a communication from Dale Luthringer who independently measured several trees for me over the weekend.

*Here's a recap on some of the more noteworthy trees I measured:*

### *MTSF*

*Jake Swamp 171ft-Bushnell, 171.3-Nikon 440*

*Frank Deconte 162.4-Bushnell*

*Tall hemlock 128.3-Bushnell, 129.1-Nikon 440*

### *WCB Homestead*

*Mary Byrd-Davis 152.7-Eicholz, 153-Luthringer (152.9ft avg)*

*WCB 10.6ft CBH 162.3-Eicholz, 162.4-Luthringer (162.4ft avg)*

### *Dale Luthringer*

As you can see, Dale measured the Jake Swamp Pine as 171 feet using his Bushnell and 171.3 using his Nikon. Jake has now been independently measured by three Ents (Bob Leverett, Dale Luthringer, Ed Ritz), using 5 different lasers (Leverett 2, Luthringer 2, Ritz 1).

Robert T. Leverett

## [Re: Big Tree hunter shares his findings...](#)

by **AndrewJoslin** » Mon Oct 15, 2012 12:55 pm

I really like the two willow oaks, It's the last photo in the set. Reminds me of Congaree, SC magnitude oaks. Would love to see a crown photo as well, looks like good potential for decent height as well as girth.

Thanks for posting.



Andrew Joslin

## [Re: Big Tree hunter shares his findings...](#)

by **JohnnyDJersey** » Mon Oct 15, 2012 4:53 pm

Thanks guys. Congaree State Forest is on my short list of places to visit. The two willow oaks above are between 15 and 17ft CBH with almost no tapering.

They are located in one of only 4 old growth forest left in New Jersey called Saddlers Woods. Its about 25 acers of Old growth tulip poplar, willow oak, American beech ect right smack in the middle of a bustling large town, outside of Philadelphia. What I may do is post some of the pictures individually and put stories underneath them.

John Harvey

## [Nice white ash found, NJ](#)

by **JohnnyDJersey** » Tue Oct 16, 2012 8:49 pm

18'1" CBH Aprox 120' tall

Saw this white ash tree in the woods as I drove by recently. As I left the woods a hunter stopped me and after I told him what I was doing he told me there was a tree twice as big in those same woods. Cant wait to go back and find it!

Location: Wood off of New rd, Clementon NJ



John Harvey

## [Thumper Mountain Sunrise, MA](#)

by **michael gatonska** » Tue Oct 16, 2012 3:51 pm

On the morning of October 12th, I climbed up Thumper Mountain to capture the sunrise in sound. On the way up, at around 5:30 in the morning, I saw in the beam of my flashlight a very sporadic light drizzle, mixed with some visible snowflakes. At this point, I knew that the audio that I had hoped to capture would probably not come to fruition, since there was a 20% chance of rain in the forecast until 12 pm. Furthermore, upon reaching the top, I quickly realized that Route 2 was too close; the unrelenting noise of Ford, Chevy, Subaru, BMW & Company (not to forget the Fly the Friendly Skies Team) would quickly become a sustained pitch.



<https://www.youtube.com/watch?v=8qu3oJ7cIMM>

Still, I was able to record a few minutes; the video I took shows a brightening pinkish light, which eventually became a dark, burgundy red off in the east. Oddly enough, paired with the video is my captured audio which reveals a different weather situation on top of ol' Thumper - the pitter-patter sound of a light rainfall, since it was completely overcast overhead with the fall of drizzle and some light winds. Soon enough, by 6:30 or so, this would become a dense mist with a more committed rain. At precisely 7 a.m., the sounds of heavy construction equipment could be heard, probably from bridge and road work still being done Rt. 2. At this point, any further attempts to capture the sounds of nature on top of Thumper were abandoned.



Recording set-up on top of Thumper

Michael Gatonska

## [Rounding rules for TP200 and TP360](#)

by **dbhguru** » Tue Oct 16, 2012 12:51 pm

NTS, Here is the text of an email from Steve Colburn, Director of Sales for North America for LTI, sent to a number of Ents and affiliates.

*Hello Bob, et.al.!*

*Thanks as always for putting our instruments to the test, Bob. There is nothing like an impartial keen eye to keep us on our toes! My delayed response to this message is due to the fact that I wanted to verify something with our (very busy) Engineering dept. It was to determine the formula used to round the numbers seen in the display of the TruPulse, after a precision distance measurement is completed. Here is the answer:*

*When units are set to Feet with the increments at 0.5', the unit rounds as follows:*

*10 = 9.75 to 10.24*

*10.5 = 10.25 to 10.74*

*11 = 10.75 to 11.24*

*When you confirmed with me, Bob, that you positioned yourself right at the changeover point with the higher number displayed, this would put you at the low side of the value, ~ 0.25' less than the display. If you factor this in to the data set attached, the numbers get even better with an average error of ~ 0.08' or about an inch!*

*This demonstrates that careful use of the instrument with proper procedure can yield very accurate results. We need to keep in mind, however, that most users won't practice quite the level of care as Bob does when measuring and they also will be shooting to more "uncertain" targets like leaves, twigs, candles, etc. At any rate, it sure is nice to see confirmation in the data that the process is working as planned!*

*Many thanks also for organizing the workshop at MTSF last Friday Bob, you did a great job as usual.*

*Walks through the woods measuring trees with you is quickly becoming one of my favorite activities!*

*Warm regards,  
Steve Colburn  
Director of Sales, North America  
Laser Technology, Inc.*

By taking the time, it is apparent that we can measure distances extremely accurately with the TruPulse line. From a spot of known distance, the angle can be measured independently to get our best determinations of height to date. Note that Steve says

This demonstrates that careful use of the instrument with proper procedure can yield very accurate results.

By proper procedure, Steve means the sine method where that method needs to be used. He has to be cautious about what he says for obvious reasons, but he understands what works and what doesn't. We are making rapid strides in getting the message across.

Robert T. Leverett

## [Re: Middleton Oak and Angel Oak](#)

by Neil » Wed Oct 17, 2012 9:35 am

Hi Larry, Yeah, live oak grows so much faster than many folks suspect. Here is our past discussion on the topic:

[http://www.nativetreesociety.org/fieldtrips/mississippi/liveoak\\_ages/live\\_oak\\_ages.htm](http://www.nativetreesociety.org/fieldtrips/mississippi/liveoak_ages/live_oak_ages.htm)

I do not have too much to add except that there is a new, more-rigorous, exploratory tree-ring analysis of live oak. You can download the paper here:

<http://web.utk.edu/~grissino/downloads/Bartens%20et%20al%202012.pdf>

Neil Pederson

## [Re: Middleton Oak and Angel Oak](#)

by bbeduhn » Thu Oct 18, 2012 4:17 pm

I spent some time with both trees last week. My first acquaintance with the Middleton Oak was on the garden tour. I saw it from afar and thought that it couldn't be THE oak. It was, but not in its former glory. It had really lost an awful lot of volume. First, I'll list the missing trunks/limbs and then come the measurements.

These are approximations:

2' d 1.5' x 2.5' d 3' d 3.5' x 4.5' d 3.5' x 4' d

32'10" cbh No real growth since Eli measured it two years ago (32.81').

The brochure states a cbh of over 37 feet, with a height of 85 feet and a spread of 145'. I measured at 7' and 3' as well just for kicks and grins. The 37'+ figure claimed on the brochure must have been the max circumference at about 8' or so. I got 36'8" @ 7' and 33'0" @ 3'.

I got a spread of 126.75' For some reason, I forgot to get a height but I assume it hasn't changed much from Eli's 65.4'. The spread was 126' two years ago, so only a slight change.

I inquired about what was actually known about the tree and was told that it was a Native American trail marker when the first home was built in 1705.

However, many records were destroyed during the Civil War, so that is likely oral tradition. The lady who is best versed on the history of the gardens is in the hospital and is quite well on in age. apparently, she likes being the one in the know and hasn't shared everything that she knows with the other docents. If the story is true, it could place the tree in the 400 year range.

The Angel Oak looks to be in outstanding health. I got a height measurement of 62.9', a spread of 163.8' (a little shy of its true spread) and a cbh of 28'1". last year I got 28'0", showing one inch of growth. For spread, I measured 18 roughly even spaced spots about the tree. This is overkill but shows how it

plays out and many spots instead of just 4.  
My spread figures not including the tree diameter:

105' 105' 102' 96' 84' 84' 82.5' 72' 69' 61.5'  
61.5' 60' 51' 49.5' 52.5' 63' 91.5' 103.5'

These figures are simply what the laser showed, so they are a little shy of the true spread. I had a 2 year old and a 6 year old with me. They enjoyed following me around and playing with the instruments but I wasn't able to lay out tape to get a truly accurate spread length. Eli's 165' spread from two years ago may well have grown a bit. I got two other heights at the Angel Oak:

loblolly pine 94'  
laurel oak 92.5'

The Angel Oak is named after the family who used to own the property. I have pictures of both oaks and will post them soon. I'll start a new thread about Middleton Place.

I found plenty more large live oaks as well. The most impressive was a 27.6' behemoth. It looked fairly young, likely 180-200 yrs. There's also a 31'8" but the two main trunks are connected at just 6' up. The larger trunk is 21'7". I got plenty of photos.

When you want to get together to talk about the website and look at photos?

Brian Beduhn

## [More bad news...](#)

▣ by [jamesrobertsmith](#) » Wed Oct 17, 2012 5:59 pm

If something doesn't happen to curtail the Earth's human population, most ecosystems are going to collapse very soon.

**Madagascar palm trees at risk of extinction, study finds** 17 October 2012

<http://www.bbc.co.uk/news/world-africa-19985536>

As we have been warned for decades now, we're bringing down the Sixth Extinction. And we're bringing it down on our own heads, but the people who notice are the ones shunted aside. My only consolation is that I know enough species will make it through so that diversification will once again take place and the planet will heal itself and be a grand place for life for another few billion years. Hopefully, nothing again will rise up to degrade the very ecosystems that support it. Intelligent life and technology? Overrated and a bane to the planet.



A pika I photographed on my way to Chasm Lake in Rocky Mountain National Park. They say it's going to be one of the first North American mammals to go extinct from the effects of human-caused global warming.

James Robert Smith



## [Freakin Big Oak, MA](#)

by **dbhguru** » Thu Oct 18, 2012 8:31 pm

NTS, Today Bart Bouricius and I met Eric Morgan in Whately, MA to see a large northern red oak he wanted us to measure. Here is what we saw.



Measurements for the big oak are girth = 20.1 feet, height = 83.5 feet, Avg spread = 90 feet. Not half bad. The tree grows just above the Connecticut River and appears to be fairly old. I'd say approaching 200 years if not older. There is a scattering of large trees on the slopes going down to the Connecticut. When

the ground freezes, we'll look for more big trees along the river corridor.



There is a chance that the tree is a double. Seams can be seen on several areas of the trunk. From the uphill side, it looks like it is going to be a double, but all evidence disappears when viewed from the downhill side. At this point, we're giving it the benefit of the doubt, but the jury is still out. I plan to return and take more photos.

Robert T. Leverett

**Re: Asheville Trees**

by **bbeduhn** » Fri Oct 19, 2012 3:45 pm

Update

I've included a few Weaverville locations as well, just north of Asheville.

Calocedrus decurrens incense cedar

Montford, Cullowhee/Cumberland	86.3'	
Kenilworth, Waverly	96.7'	
Weaverville, cemetery	63.2'	9'2"
cbh		
Weaverville, Main St.	70.6'	
N. Asheville, Norwood	75.2'	

Taxodium distichum baldcypress

Montford, Cullowhee/Cumberland	98.1'	79.6'
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Chamaecyparis pisifera Suwara falsecypress

Montford, Cullowhee/Cumberland	75.5'	
near downtown, Baird	69.3'	
N. Asheville, Beaver Lake, Lakeside	83.6'	

Juniperis virginiana Eastern redcedar

Weaverville, cemetery	74.4'	7'9" cbh
Weaverville, Main St.	74.2'	9'0" cbh

Brian Beduhn

**Re: Metasequoia Glyptostrobooides (Dawn Redwood)**

by **bbeduhn** » Fri Oct 19, 2012 3:13 pm

I have another handful of Meta Glyphs:

UNCA Asheville quad 63.1' 69.3'

Renaissance hotel downtown Asheville

84.6' 84.8 These are twins...and I can't believe it took me this long to notice them!

College downtown, Renaissance property 60.3'  
Just makes my threshold of 60'

Brian Beduhn

**Re: Bear attack! (On my Doug-fir tree!?!?)**

by **PAwildernessadvocate** » Fri Oct 19, 2012 2:44 pm

If anyone is interested/curious, my tree lived through the summer just fine. A number of small branches died, and it didn't really put on much new growth, but lots of new tissue grew over almost all of the deep claw marks on the trunk of the tree.

To help the tree, I immediately staked it upright on the morning I found it tipped over, fertilized it with four Jobe's evergreen spikes (this was May), watered it whenever there was dry weather, and fertilized it again with four Jobe's evergreen spikes in mid-July.

I will want to leave it staked for at least another growing season. Ideally I should probably leaved it staked through the 2014 growing season as well, but I'll probably just take it off about this time next year and leave it at that. Should be ok (unless another bear attacks it, ha ha!).



Kirk Johnson



## [Ents Mascot](#)

by **Rand** » Sat Oct 20, 2012 3:48 pm



Large Tree Troll Sculpture by Kim Graham. This tree troll is entirely made from Paper Mache! The Troll measures in at 12 feet tall and was built by Kim and a group of volunteers with completely non-toxic materials.

<http://kimgrahamstudios.com/troll.html>

## [Re: The tallest tree of Europe?](#)

by **KoutaR** » Sat Oct 20, 2012 8:00 pm

A video of climbing the "Karri Knight" (possibly the tallest tree of Europe, *Eucalyptus diversicolor* in Portugal, 72 m):



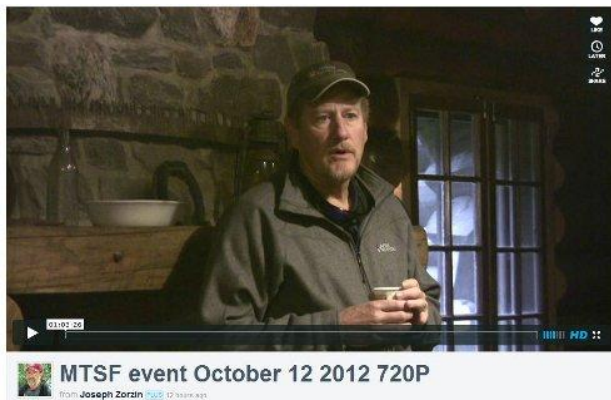
<http://www.youtube.com/watch?v=3W9dxSTSXHI>

Kouta Rasnen

## [Re: October 12th Advanced Tree Measuring Workshop](#)

by **Joe** » Sat Oct 20, 2012 4:02 pm

I have just uploaded my video of the October 12th event: <https://vimeo.com/51807708>



It was raining early so most of the video consists of the speakers in the lodge. I tried filming the group in

the woods but there were too many people so I gave up on that effort except for a short clip. At the end, Joan Maloof presents a certificate to Bob and the DCR indicating that Mohawl Trail State Forest is now part of the Old-Growth Forest Network.

I have other videos of just Bob measuring trees and explaining the techniques, one at Look Park in Northampton and one at MTSF which I may turn into another video.

Joe Zorzin

## [Re: October 12th Advanced Tree Measuring Workshop](#)

by **edfrank** » Sat Oct 20, 2012 8:42 pm

Here are some shots pulled from the Joe Zorzin video:



Dave Miller



Tim Zelazo



Bob Leverett



Tim Zelazo



Steve Colburn



Bob Leverett



Joan Maloof



Joan Maloof and Old Growth Forest Network dedication plaque



Joan Maloof and the audience



Group photo at Old Growth Forest Network Dedication

Photos by Joe Zorzin



Practice Makes Perfect

## [The vanishing groves](#)

A chronicle of climates past and a portent of climates to come – the telling rings of the bristlecone pine  
Ross Andersen 16 October 2012

<http://www.aeonmagazine.com/nature-and-cosmos/ross-andersen-bristlecone-pines-anthropocene/>

## [Re: The vanishing groves](#)

by **Don** » Mon Oct 22, 2012 3:15 pm

Ed-

Good find (and current too!), Will and I are in accord, this is a very well written piece, on my next to most favorite five-needle pine. Anderson's writing style reminds me of Michener, who once a topic was selected, chose to start at the very beginning and bring the topic through time providing perspectives along the way.

Over the last decade, I've spent much of my free travelling time visiting the bristlecone pines of the White Mountains, and the foxtail pines across the Owens Valley, in the high reaches of the Sierras. I find it very interesting that these two tree species seem to have a North/South divide along the Owens Valley...foxtail pines are found no where East of the Owens River (although relicts are found in wilderness areas in very northwestern California), and bristlecones are found only East of the Owens Valley (including small relict populations in Nevada and neighboring Utah).

The foxtail pine (*Pinus balfouriana*) age maxima appears to be around 2000 years, about half that of the bristlecone pine (*Pinus longaeva*) maxima. The mystery for me is why the foxtail pines don't age back as far as the bristlecone pines, with such similar genetics and environments (little more than 20 crow-flying miles and both with elevation minimas of 10,000'). They do have distinct bedrock formations, foxtails growing primarily on granitic based soils, while bristlecones favor dolomitic based soils almost exclusively.

Last comment...Anderson might have considered investigating whether or not the bristlecone dendrochronology contained records of similar global warming periods...are we in fact experiencing a rate of climatic change outside the normal range of variation?

Don Bertollette - President/Moderator, WNTS BBS

## [Made greatest trees you tube video...](#)

by **JohnnyDJersey** » Mon Oct 22, 2012 5:00 pm

I was playing around with windows movie maker and put this together...most of the photos aren't mine but enjoy...

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



## [American Chestnuts, Pepperell, MA](#)

by **EMorgan** » Mon Oct 22, 2012 10:08 am

Hello, I'm new to this forum and this is my first post. Bear with my while I try to figure out all of the bells and whistles.

I found two mature American chestnut trees behind my house in Pepperell, MA. These are not the average scrawny root sprouts. I figured I'd share with everyone since there is a dearth of material on American chestnuts on this site.

The two trees are full-sized and appear to be from new seeds, rather than from shoots. The larger tree has a girth of 26 inches; the smaller is 17 inches. I haven't measured their heights but I think they are both in the 40-45 foot range and are blight free. This entire area is filled with chestnuts of varying sizes but these two are by far the largest. I have already contacted The American Chestnut Foundation about them.

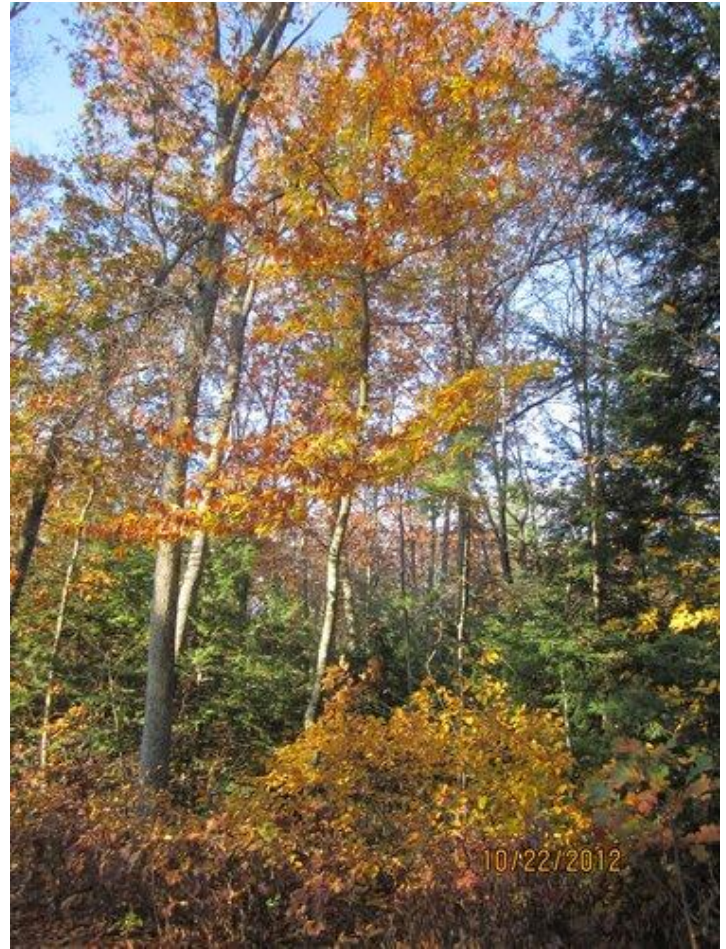
You can see a bunch of pictures here:

<https://docs.google.com/folder/d/0Bw1ZerQEvrMONUwzZENCcEdQeDg/edit>

I also uploaded an attachment of the larger tree. I'm trying to figure out the gallery situation.

The larger one dropped burs in September; the smaller one did not flower because it's under canopy. Since I only discovered them in late June, I don't have pictures of the flowers. This fall I was only able to find one viable seed on the forest floor; most of the seeds were sterile. I'll plant it in a pot next spring.

I'm confident that TACF will reintroduce blight-resistant chestnuts into the wild in the coming decade. They have made a lot of progress in the last 35 years to bring back this iconic tree. The Redwoods of the East will rise again.



From what I've read the number of American chestnut trees that survived the blight was close to, but not, zero. It's obvious that some still thrive in certain environments, though it's not clear why. It would be great if you could post some pictures of the one there in NC. Do you know if it produced viable seeds?

There's a chestnut orchard nearby my house. The trees are now about 10 years old and producing flowers and nuts. They're elegant. But it's strange that almost no one knows what they look like anymore. Most people think of horse chestnut rather than American chestnuts. Prior to the blight, American chestnuts supported some economies in Appalachia by giving wood, food and feed for animals. The chestnuts were practically currency. They'll be back.



(October 23, 2012): I added some pictures of the American chestnut burrs that dropped from the tree. I included some Chinese chestnut burrs for comparison. For all of you Western MA folks, there are three flowering Chinese chestnuts in South Deerfield. There are two at Ward Cemetary which is east of Sugarloaf Mountain on River Road. There is also one at the private residence adjacent to the cemetary. In September they produce edible nuts. They would also fertilize any nearby American chestnuts to form hybrids.

### [Re: American Chestnuts, Pepperell, MA](#)

by **EMorgan** » Mon Oct 29, 2012 10:04 pm

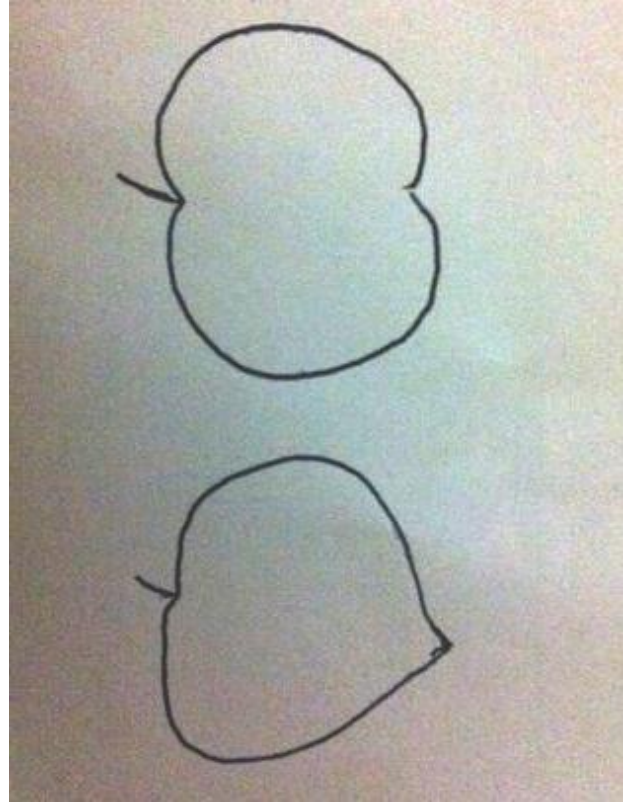
Quick update: the American Chestnut Foundation confirmed that the trees are real American chestnuts. Also, I found a third 40' tree about a quarter mile away. Unfortunately, it broke at about 10' and bent over to the ground. My theory is that it flowered in years past and pollinated the one in my yard. That didn't happen this year because it probably broke last October in the snow storm.

### [Vine ID help, Georgia](#)

by **eliahd24** » Sun Oct 21, 2012 8:12 pm

I found a woody vine creekside in a east facing rich hardwood forest on the campus of Emory University in Atlanta, GA, but I cannot for the life of me identify it. I've tried numerous websites to no avail. This forest where the vine is located is quite nice and has rare Bay Starvine (*Schisandra glabra*), but this vine is different. It's a large liana with grayish-tan bark that splits with age (see pic). The leaves are the really unique feature. They seemed to have two forms- see attached pic of my drawings (leaves were too high to get photo's of). The leaves are quite large too- some maybe 6" or more across. Any ideas??

~Eli Dickerson

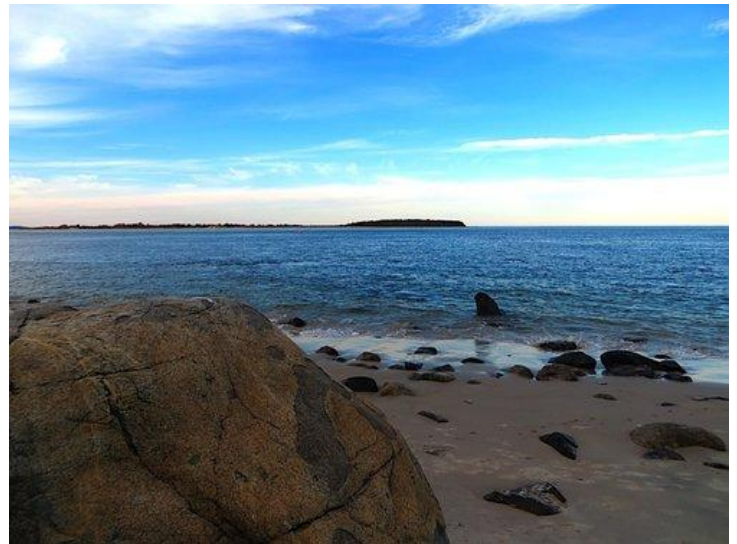


## [Crane Beach, MA](#)

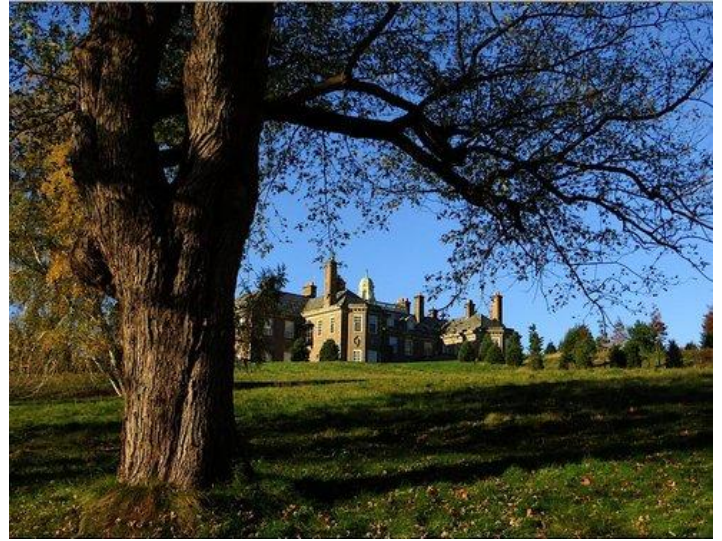
by **dbhguru** » Tue Oct 23, 2012 8:30 pm

Hi Everybody,

Monica and I are at Crane Beach. No big trees, just ocean beauty. Wanted to share some of the scenes.







Robert T. Leverett

## [Re: Crane Beach](#)

by [dbhguru](#) » Thu Oct 25, 2012 8:05 pm

NTS,

Some final images from the Castle on the Hill property of the Trustees of Reservations taken this morning before leaving this fabulous place. First, three images from the castle and surrounding grounds.



Now for the Inn where we stayed.



Tomorrow, more beach, estate, and tree scenes.  
Folks, you can't go wrong staying at the Inn at Castle Hill.

Robert T. Leverett

## [NTS Tuliptree study in NPS news 10/24/12](#)

by **Will Blozan** » Wed Oct 24, 2012 8:56 am

NTS, This just came out today.

### **Tallest Native Hardwood Tree In North America Is Located In A National Park**

Submitted by Jim Burnett on October 24, 2012



The screenshot shows a webpage from National Parks Traveler. The article title is "Tallest Native Hardwood Tree In North America Is Located In A National Park" by Jim Burnett, dated October 24, 2012. The article text includes: "If you were looking for the tallest native hardwood tree in temperate North America, where might you begin? A group of dedicated volunteers from the Native Tree Society has found the answer, and it's in the Great Smoky Mountains National Park. Members of the Native Tree Society (NTS) are described as 'tree hunters ... a group of outdoor enthusiasts, hikers, climbers, adventurers, artists, and scientists obsessed with exploring the forests and woodlands of the world.' One of their current projects is a multi-year effort to locate and measure large tuliptrees (*Liriodendron tulipifera*) in the Smokies, and their work is certainly paying off."

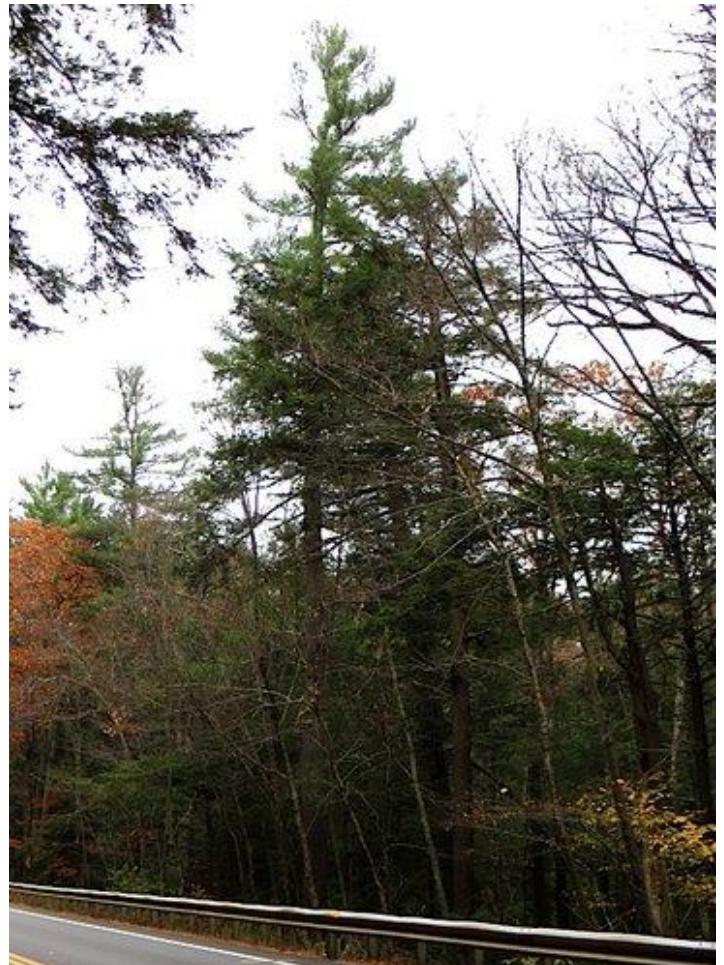
<http://www.nationalparkstraveler.com/2012/10/tallest-native-hardwood-tree-north-america-located-national-park10714>

Will Blozan

## [The Fisher Pine, MA](#)

by **dbhguru** » Thu Oct 25, 2012 7:06 pm

NTS, On our return trip from Crane Beach, Monica and I detoured to visit a large white pine on the property of Harvard Forest in Petersham, MA. I have monitored the pine for a number of years. Well, today, I confirmed it as a new 140-footer. It measures 12.4 feet in girth, and earns 301 points on the champion tree formula. It's a biggie.



I'm proposing that the pine be named for Harvard Forest's Dr. Fisher. I'm hoping that Harvard Forest will go for the name and dedicate the tree. We'll see. The preceding two images show the pine. It is pretty old. I'm thinking between 180 and 230 years with the likelihood of the high end.

With the confirmation, Harvard Forest becomes the 27th site in Massachusetts with a tree of any species reaching to 140 feet. It pick up a tree over 12 feet around and over 140 feet is an even more selective club. There are 9 sites statewide with trees of any species that combine a girth of 12 feet or more with a height of 140 feet or more.

Robert T. Leverett

### [Beginnings of Laser Rangefinder Sine Based Tree Height Meas.](#)

by **edfrank** » Fri Oct 26, 2012 3:03 pm

NTS,

I prepared this document over the last month. I tried to forward this final copy to the various people mentioned prior to posting here, but it appears that the email have not gone through to the addressee's inboxes. I think the ISP, Comcast, in its infinite wisdom, has decided through its email filters that this post with an attachment is some sort of a phishing scheme. This is in spite of the fact that I get dozens of junk emails every day that are obvious phishing schemes that make it through the company's email filters. I have tried to email this through the BBS and my cc copy comes back labeled a phishing scheme. I give up. If any of the people mentioned have additional comments or corrections, please post a reply here, and I will revise the document.

Edward Frank  
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### **Beginnings of Laser Rangefinder Sine Based Tree Height Measurements**

By Edward Frank, October 9, 2012

For years the standard method of measuring tree heights in the forestry industry was to first measure the distance to the base of the tree, then measure the inclination to the top of the tree with a clinometer.

The height of the tree above eye level was equal to the tangent of the inclination times the distance to the base. This is the tangent method of tree height measurement. Indeed many clinometers were sold with a percentage slope scale, or even a scale that allowed a direct tree height reading using this method when the observer was a specified distance from the base of the tree – generally 66 feet. The method works adequately for measuring the height of marketable timber on these trees, but does not provide a good measurement of the total tree height for champion tree purposes or as data for scientific research and modeling.

Height above eye level =  $\tan(a) \times$  distance to tree trunk

People with an engineering or surveying background will realize that if the point sighted using the clinometer as the top of the tree is not directly over the base of the tree, a right angle triangle is not formed, and the tree height measurements will be incorrect. The amount of error in the height will be equal to the amount of offset in the direction of the observer times the tangent of the inclination to the top. Common errors even when the measurements are made perfectly may be in the range of ten to twenty feet or more in the case of many broad crowned trees. In addition if the top of the tree is not correctly identified, the resulting height will also be wrong. For example sighting on a forward reaching branch can result in errors of up to 50 feet or more.

A simple solution to the methodological problems of the tangent method became available with the development of laser rangefinders. The first hand-held total station, which included a laser rangefinder and an electronic clinometer, was the Criterion released in 1992 by Laser Technology, Inc.

<http://www.lasertech.com/default.aspx>



At this time there were a number of big tree hunters that already were measuring tall trees using the improved surveying techniques to replace the inadequate tangent method. There are several approaches to problem of accurately measure tree heights. One approach is to locate the point on the ground directly underneath the topmost point of the tree. Once this point is located, rather than just arbitrarily using the base of the tree trunk, the tangent based methods can be used to obtain true tree heights.

If the point on the ground is directly under the top of the tree, then a right triangle is formed. The height of the tree above eye level in this right triangle is the tangent of the inclination to the top times the distance to the point at eye level directly under the top. The position on the ground directly under the top was found through cross-triangulation methods.

Alternatively regular surveying techniques could be used to measure tree heights. If a direct line of sight to the top could be found from two different locations, and a direct line of sight could be obtained between the two or more) observation points, the angles between the survey stations, the angles from each to the top of the tree, and the distance between the survey station measured, then the position of the top of the tree in space relative to the survey station can be calculated. A third viable measurement technique is to climb the tree and directly measure the tree's height using a long tape measure. All of these methods are time consuming and difficult to implement.

When using a laser rangefinder a much easier, quicker, and more straight forward methodology can be used to measure tree heights. It allows the surveyor to directly measure the distance from his

position to the top of the tree. The using a clinometer the inclination to the top of the tree can be measured from the same position. The height of the tree above eye level is simply the sine of the inclination times the distance as measured by the laser rangefinder.

Height above eye level =  $\sin(a) \times \text{distance to the top}$

With the use of a rangefinder, the height of the top and base above or below eye level can be measured independently. It no longer made any difference in the accuracy of the measurement if the top of the tree was not directly over the base or trunk of the tree.

Nor did the amount of offset make any difference. This eliminates one major source of error present in the tangent method.

The other major source of error when using the tangent method is misidentifying the true top of the tree. Even with practice it is difficult to determine based upon visual clues alone which of several tops is actually the tallest. In addition to directly measuring the distance to the top, a laser rangefinder allows the surveyor scan the top of the tree to correctly identify which sprig is actually the tallest point of the tree visible from that position. In general, among several potential tops at similar angles, the sprig that is farthest away is tallest of the group.

The basic trigonometry of the situation shows the overall superiority of the sine based height measurements over the tangent based measurements.

This should be readily apparent to anyone with a mathematically oriented background. Indeed the engineers at Laser Technologies built a Vertical Distance (Vd) routine into the Criterion instrument. Unfortunately they also included a tree height measurement routine based upon the tangent method as a paen to this long ingrained methodology typically used by forestry professionals.

At least three different people began using the sine based methodology to better pursue their tree measurement exploits. These people, Robert Van Pelt

<http://www.humboldt.edu/redwoods/faculty/vanpelt.hp>, Michael Taylor

[http://en.wikipedia.org/wiki/Michael\\_Taylor\\_%28forester%29](http://en.wikipedia.org/wiki/Michael_Taylor_%28forester%29) and <http://www.landmarktrees.net/>, and



Robert Leverett

[http://www.nativetreesociety.org/people/ents\\_executive.htm](http://www.nativetreesociety.org/people/ents_executive.htm) each began using the method independently in the late 1990's. The first person to use the sine method, via the vertical distance routine in the Criterion, was Robert Van Pelt in northwestern Unites States.

Will Blozan

<http://www.appalachianarborists.com/default.html> (email 2012-10-01) talks about a conversation he had with Robert Van Pelt around this time:

*I met BVP in 1993 when he stopped by a display I was presenting on big trees (in GRSM) at an ESA meeting in Knoxville. He gave me some leads on some trees which he had measured via tape drag triangulation. His display had some early versions of his GOPC drawings and he suggested getting a laser for measuring. This facet of tree documentation was then brought home at Cook Forest with the Longfellow Pine. [Longfellow Pine measurement was taken in 1997]*

Steve Sillett

<http://www.humboldt.edu/redwoods/sillett/> (email 2012-10-01) writes:

*I remember in the early 1990s working with Michael Taylor and he was using the tangent method because neither of us had a laser. In the mid-90s we started working with Van Pelt who had Jerry Franklin's Criterion. I think that was the first time any of us started using the sine method, which was obviously superior to the tangent method. All along my preferred method has been direct tape drop, which is the most accurate, though not always practical!*

There are more accounts of the Longfellow Pine measurement available to confirm this event: Longfellow Pine Update, Cook Forest, PA, by Dale Luthringer, April 10, 2008, History of measurements of the Longfellow pine: 11.1 178.1 July 1997 avg height of Impulse laser, surveyor's transit, laser rangefinder/clinometer by VanPelt, Leverett, Blozan, Soban  
[http://www.nativetreesociety.org/fieldtrips/penna\\_cook\\_forest/longfellow\\_pine\\_update\\_pa.htm](http://www.nativetreesociety.org/fieldtrips/penna_cook_forest/longfellow_pine_update_pa.htm)

Michael Taylor another west coast tree hunter in an (email 2012-09-29) also confirms that Robert Van Pelt was the first person he saw using a laser rangefinder to measure tree heights. He can also fairly be considered an inventor of the use of the sine method. He writes (email 2012-09-29):

*I was also using an optical range-finder [and Suunto clinometer] which I bought in 1993 (1994?) and was using the sine method with the optical rangefinder then as well. I still have that old thing. It was just accurate enough to be of some use.*

*I purchased my first reflector-less laser in 1994 (1995?), a Lytespeed-400 for \$350. It was one of the first ever sold by Bushnell in California. I was on a waiting list for almost 6 months. I knew right away the benefits of finding the hypotenuse to the top with a reflector-less laser after I saw Bob using his Criterion 400. The price range had finally come into my reach. In 1994 the Criterion 400 was way out of my price range.*

*I used the sine method immediately with the Lytspeed 400. It was the obvious choice due to lean of tree being already figured out when you take the hypotenuse to the top.*

In the eastern United States Robert Leverett was already by this time an obsessed tree measurer.

Robert had been measuring tree heights using the standard tangent method as part of his documentation efforts to locate patches of old growth forests in the eastern United States. The story here is more detailed because of his extensive writing in the forums of the Eastern Native Tree Society and its successor the Native Tree Society. In 1992 he met with Jack Sobon, a professional surveyor among other skills, to measure the height of the Jake Swamp white pine and Joe Norton white pine at Mohawk Trail State Forest in MA. Jake Swamp is currently the tallest known tree, as of fall 2012, at just over 170 feet tall. In February 2006  
[http://www.nativetreesociety.org/native/jake\\_swamp.htm](http://www.nativetreesociety.org/native/jake_swamp.htm) he wrote:

*The Joe Norton and Jake Swamp Pines are both white pines. Back in November of 1992 when Jack Sobon and I first measured the two trees with a*

*transit. Before that, I'd only measured Joe, using crude techniques. Yep, I think that was in 1990. Am I obsessed or what? When Jack and I measured the two, Joe was 155.6 feet tall and Jake was 155.3. Joe has suffered more crown damage over the years.*

This experience brought home the problems with the tangent method of tree height measurement and he set out to find ways to get better height measurements. Jumping to 1994, Robert Leverett wrote

[http://www.nativetreesociety.org/entstrees/early\\_ents\\_history.htm](http://www.nativetreesociety.org/entstrees/early_ents_history.htm) in July 2006:

*Will Blozan, who worked for the GSMNP at the time, got into tree heights in a big way as a consequence of a joint mission we spawned in 1994. I'm sure Will had measured literally thousands of trees for diameter before that - far more than I had. We really got going as a team on our tree height mission in 1995 first as a consequence engineering the crown cross-triangulation method and later through acquiring the LiteSpeed 400 Laser Rangefinder from Bushnell, courtesy of information we got from BVP (who else?). The LiteSpeed 400, the Suunto Clinometer, the scientific calculator, and the proper application of nothing more than high school-level trigonometry has since revolutionized the measuring of tree heights.*

Robert Leverett (email 2012-09-30) write more about the introduction of the laser rangefinder into the process:

*I, like Michael, independently saw the application of the sine method with the Litespeed 400, and introduced it to ENTS in 1996. Will and I both bought Bushnell Litespeed 400s as a consequence of that model being recommended to Will by BVP at their first meeting in Tennessee...*

*The history is admittedly a little convoluted, partly because it is the obvious technique to employ if you can measure hypotenuse and angle. I would imagine countless scientists and engineers would just do it without giving thoughts to names. However, in terms of introducing the method by name to ENTS, i.e. sine method, that's me...and me alone.*

*I came to understand Bob's methodology in a later conversation when we discussed how we were actually measuring tree height. In the course of the conversation Bob explained that he used the "sine" method as one of the returns of the Impulse laser despite the traditional tangent method, which is programmed into the Impulse as an official tree height method.*

*I expect that BVP and possible Steve Sillett were the first to actually use the technique with infrared laser measuring equipment. Steve will have to explain when he first entered the picture. But, as it now stands, I would say that the sine method appears to have been arrived at independently by BVP, Sillett?, Michael Taylor, and yours truly. If there are others, they have not revealed their identity to us in conversation or writing.*

*Now, here is an important point. The sine method is the logical choice for measuring tree height if you have the equipment to measure hypotenuse distance and angle regardless of what name you affix to what you are doing. It is a no-brainer. Basic trigonometry. The forestry profession's fixation on tree trunks and insistence in establishing a common baseline to measure both the top and bottom height components turned a simple problem in basic trigonometry into an ocean of errors, as we have all witnessed.*

*I hope this sheds light on the issue. I cannot speak for others, so if they have additional information or clarifications, I do hope they'll come forward and speak for themselves. I'll close with a final point. I suppose sine method is as much a political name as an engineering or scientific one coined by me to hammer home the inefficacy of the slope or tangent method in measuring tree height.*

Will Blozan (email 2012-10-01) confirms and expands upon this account of the methodology coming to ENTS:

*I bought my first laser a few months after Bob L. after numerous phone conversations- who explained to me on the phone what to do (I still have my notes). I toyed around with some Smokies trees but my first major survey with the laser was in CONG, December 1996. Bob L. introduced the SINE method to me.*

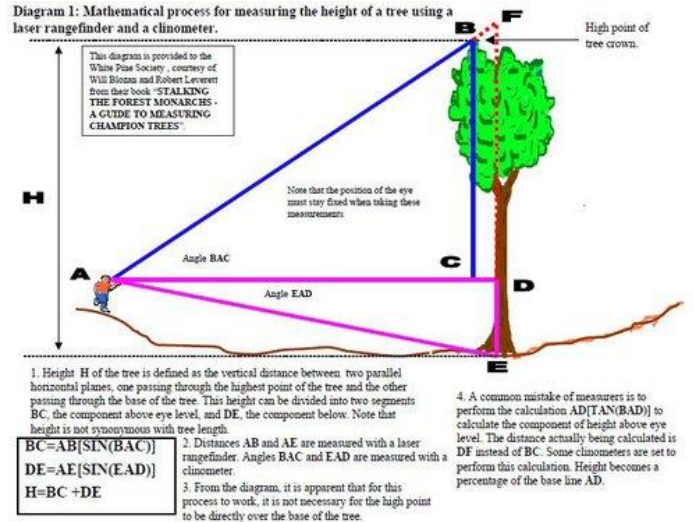
A description of the method was first published in 1997. Robert Leverett (email 2012-09-30) writes:

*In terms of explaining the sine method in a publication, so far as I am aware, that occurred in "Stalking The Forest Monarchs - A Guide to Measuring Champion Trees", published by Will, Jack Sobon, and myself and brought to the 1997 old growth conference in PA in June 1997. However, we had been using the technique since sometime in 1996 - thanks to the Litespeed 400, which again, was recommended to Will by BVP in their initial meeting. Here is a for instance in the chronology. In Dec 26, 1996 Will went to Congaree for the first time to measure those trees using the Litespeed 400.*

Robert Leverett wrote in January 2004 [http://www.nativetreesociety.org/threads/looking\\_back.htm](http://www.nativetreesociety.org/threads/looking_back.htm) more about the publication of this book:

*Back in 1995, Will Blozan, Jack Sobon, and I set out to write book. We researched the available material on eastern big tree sites and individual species such as the white pine, tulip tree, American sycamore, baldcypress, etc. We wanted to set the record straight about the giants of yesteryear. We also wanted to describe methods by which an interested person could accurately measure tree dimensions. We were on a holy crusade to clean up the champion tree registers, principally the National Register of Big Trees. The book, published in 1997, was entitled "Stalking the Forest Monarchs - A Guide to Measuring Champion Trees."*

Even though it is currently out of print an excerpt from the book can be found online here: Excerpt from Stalking the Forest Monarchs <http://www.whitepines.org/Tree%20Measuring%20Guide.pdf>



Since these beginnings the use of the sine method of measuring tree heights has spread among many big tree hunters in the western United States, among the measurers of Native Tree Society, and among scattered people around the globe associated with these groups.

An interesting example of this methodology spreading can be documented from Australia. After the introduction of laser rangefinders in the mid 1990's, there were a number of publications from the Australia that detail the use of lasers for tree height measurement. Two examples from Tasmania are: Tasmania's tallest trees by J.E. Hickey, P. Kostoglou and G.J. Sargison, in *Tasforests* Vol. 12 December 2000 [http://117.55.239.235/assets/0000/0184/tasfor\\_12\\_09.pdf](http://117.55.239.235/assets/0000/0184/tasfor_12_09.pdf) and A survey of ultra tall eucalypts in southern Tasmania, A report to Forestry Tasmania By Parry Kostoglou, June, 2000 [http://www.forestrytas.com.au/uploads/File/pdf/tall\\_trees\\_survey\\_report.pdf](http://www.forestrytas.com.au/uploads/File/pdf/tall_trees_survey_report.pdf). In both of these investigations they used a laser 'Impulse Series 2000' rangefinder manufactured by Laser Technology Inc. It is clear from the descriptions that the tree height function utilizing the tangent method was being used by the investigators based upon their description of usage and the errors generated.

The change to the sine method was documented in a publication from 2002: Victoria's tallest trees by Brett M. Mifsud in *Australian Forestry* Vol. 66, No. 3 pp. 197-205, Revised manuscript received 25 November 2002, <http://svc043.wic023v.server->

[web.com/pdf/pdf-members/afj/AFJ%202003%20v66/AFJ%20Sept%202003%2066-3/Mifsud%20final.pdf](http://web.com/pdf/pdf-members/afj/AFJ%202003%20v66/AFJ%20Sept%202003%2066-3/Mifsud%20final.pdf) Brett Mifsud writes:

#### *Measuring tree heights*

*New techniques for measuring tall trees were used in this study. Initially, a Bushnell '500 Yardage Pro' laser rangefinder was used in conjunction with a Suunto clinometer to estimate tree heights in all regions. The previously-used 'simple tan' method of measuring tall trees was discarded in favour of the 'sine' method (M. Taylor pers. comm. 2000; A. Goodwin, Forestry Tasmania, pers. comm. 2001). In order to measure the height of the tree from eye level to the top-most leaves or dead branch, a direct distance from the ground to the top was measured with the rangefinder, then the angle to the top was measured by the clinometer, and trigonometry was used to calculate the vertical height. The same technique was used to calculate the difference in height between ground level at the base of the tree and eye level. Ground level was determined as the average between the high and low points of ground at the base of the tree. The rangefinder was also used for a second check on potentially tall trees: it was fired from directly below the canopy at an angle of elevation of close to, or exactly, 90°. As many mature mountain ash have open irregular crowns, it was often possible to record the tallest leaves in this fashion from directly below, thereby confirming the height assessed from a distance. When trees of extreme height were found, that is those  $\geq 88$  m, an arborist climbed the tree and used a tape measure to get an accurate height figure; that is, to the nearest 10 cm. (Fig. 3). The arborist also was often able to locate taller or equally tall trees across the skyline of the forest canopy. The difference between the height estimated by laser and the arborist's direct tape drop never differed by more than  $\pm 75$  cm and was usually within 30 cm, so the laser-estimated heights for trees that were not subsequently climbed can be considered to be accurate  $\pm 75$  cm.*

#### *Acknowledgements*

*Special thanks to Tom Greenwood for his tree climbing expertise, Michael Taylor for his generosity*

*in providing both the rangefinder and the knowledge of how to use it properly, and James Ashton for invaluable assistance in the presentation of this report.*

It is particularly interesting to see these comments documenting the point at which the sine method was adopted halfway around the world from its multiple birthplaces here in North America.

In a more recent publication, The Effect of the Black Saturday Bushfires - on Victoria's tallest trees by Brett Mifsud, The Forester, Volume 55, Number 1 - March 2012 Mifsud comments on the effect of laser rangefinders on tree surveys:

*However, the assumption that Cumberland did indeed have the tallest trees was proven quite incorrect with the advent of laser rangefinders in the late 1990s. By using a rangefinder, a single surveyor could accurately measure hundreds of trees in a single day. Following the first major surveys of the old growth E. regnans forests in Melbourne's water catchments, it was found that many hundreds of trees in the Wallaby Creek and O'Shannassy catchments far exceeded the heights of those in the Cumberland Tall Trees Scenic Reserve (Mifsud 2003).*

<http://www.forestry.org.au/pdf/pdf-members/forester/The%20Forester%20March%202012.pdf>

The Native Tree Society continues to promote the adoption of the sine method through our website, BBS, Facebook page, publications, events, conferences, personal communications, interviews, and measurement workshops. A more detailed explanation of the methodology and discussions can be found in Tree Measuring Guidelines of the Eastern Native Tree Society by Will Blozan (October 2004, revised 2008)

[http://www.nativetreesociety.org/measure/Tree\\_Measuring\\_Guidelines-revised1.pdf](http://www.nativetreesociety.org/measure/Tree_Measuring_Guidelines-revised1.pdf) and in "The Really, Really Basics of Laser Rangefinder/Clinometer Tree Height Measurements" by Edward Frank, January 12, 2010

[http://www.nativetreesociety.org/measure/really\\_basics\\_3a.pdf](http://www.nativetreesociety.org/measure/really_basics_3a.pdf) Critical reviews of the sine method have been published by U. S. Forest researchers: Bragg, Don C., 2008. An improved tree height measurement

technique tested on mature southern pines. South. J. Appl. For. 32(1): 38-43.

<http://www.treesearch.fs.fed.us/pubs/29564/> and

Bragg, Don C., 2007. The sine method as a more accurate height predictor for hardwoods. P. 23-32 in Proc., 15th Central Hardwood Forest Conf., Buckley, D.S., and W.K. Clatterbuck (eds.). US For. Serv. Gen. Tech. Rep. SRS-101.

[http://www.srs.fs.usda.gov/pubs/gtr/gtr\\_srs101/gtr\\_sr\\_s101-03.pdf](http://www.srs.fs.usda.gov/pubs/gtr/gtr_srs101/gtr_sr_s101-03.pdf)

Edward Frank

## [Archaeology of Autumn](#)

by **edfrank** » Fri Oct 26, 2012 7:30 pm



## Archaeology of Autumn by E. Forrest Frank

An archaeology of autumn covers the ground.  
The story told as if pages in a book.

The first and deepest layer are the acorns of late  
summer,

The remembrances of squirrels and chipmunks  
working,

gathering these gifts for the winter to come.

Perhaps they paused now and then for a bit of play.

Black gum was the first to color in the latest summer,  
reds, brilliant, fluorescent,  
First to color and first to fall.

Maples came next. They flashed their flash of color,  
yellows, oranges, and red. Then their moment passed.  
Down they fell to crisp a carpet on earth.

Next came the grandest of the grand,  
tuliptrees with leaves turned gold in the autumn light,  
big leaves, bold leaves, the color of the sun.

The oaks are the last bastion of summer,  
their leaves a muted rainbow of warm browns.  
They hold tight to the limbs, clinging to the past,  
waiting to release their grip  
under the late fall rains or early snows of winter.  
At last they drop.

The season completes its cycle,  
The beginning and the end of the tale.  
to form this archaeology of autumn.

**Balkans Expedition 2012 (to the region of former Yugoslavia)**

**Balkans Expedition 2012 - Location Map (Former Yugoslavia)**

by **edfrank** » Fri Oct 26, 2012 9:19 am

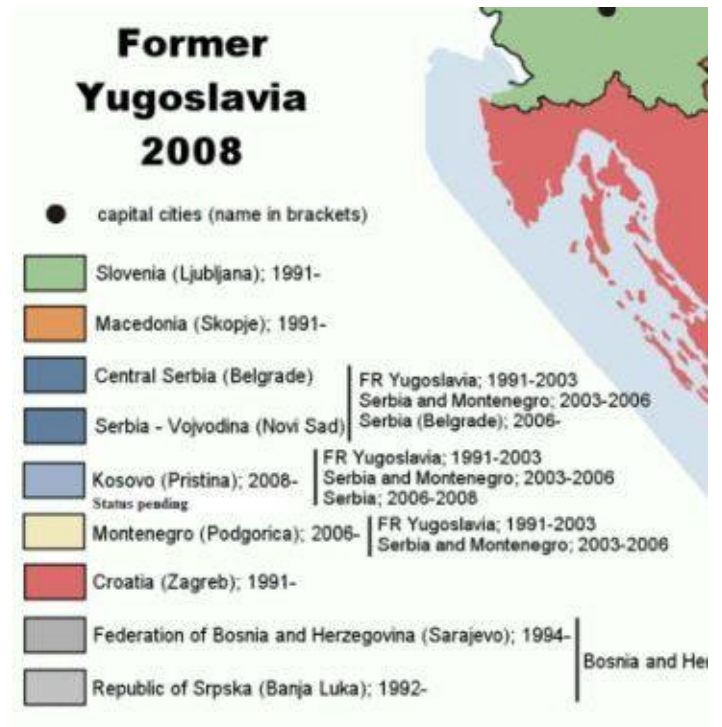
The area occupied by the SFR Yugoslavia – a strip of land stretching from Central Europe to the Balkans – lies in a region with a history of ethnic conflict. The country was a conglomeration of six regional republics and two autonomous provinces roughly divided on ethnic lines and split up in the 1990s into several independent countries. These eight federal units were the six republics Slovenia, Croatia, Bosnia and Herzegovina, the Republic of Macedonia, Montenegro and Serbia; and the two autonomous provinces Kosovo and Vojvodina within Serbia. [http://en.wikipedia.org/wiki/Breakup\\_of\\_Yugoslavia](http://en.wikipedia.org/wiki/Breakup_of_Yugoslavia)



*Location of the former country of Yugoslavia*



Present day political boundaries in the region



*Legend*

## [Introduction – Balkans Expedition 2012 \(to former Yugoslavia\)](#)

by **Jeroen Philippona** » Sat Oct 27, 2012 8:07 am

Introduction - 2012 Expedition to the region of former Yugoslavia

This year from June 19th to July 3rd Kouta, Michael Spraggon (treeclimber from England) and Jeroen made a very nice trip to four of the former Yugoslavian countries: Slovenia, Croatia, Bosnia-Herzegovina and Montenegro. Our aim was to visit several old growth forests as well as some outstanding individual trees in each of these countries.

We visited eight locations, among which were five old growth forests, and measured and photographed many trees. At several locations we were guided and informed by local people, sometimes experts. Two outstanding trees were climbed by Michael. During the two weeks we discovered some very interesting results.

Michael is making a travelogue of the whole trip and Kouta and I have written 'technical reports' about each of the locations visited.

We will send the travelogue and corresponding reports in installments as Michael finishes them. These will be published on this forum in their entirety, but the reports can also be found within the forum sections for each of the four countries. The reports will be as follows:

- A. The travelogue, in seven chapters.
- B. The technical reports (in chronological order as we visited them):
  1. The Sgerm spruce in Slovenia
  2. The Prašnik Oak Forest in Croatia, remnant of the once huge primeval Slavonian Oak Forests
  3. The Oriental Plane trees at Trsteno, Dubrovnik, Croatia
  4. The Biogradska Gora National Park with primeval forest reserve, Montenegro
  5. The Crna Poda black pine forest and a forest

- reserve near Žabljak, both in Durmitor National Park, Montenegro
6. The Perućica primeval forest reserve in Sutjeska National Park, Bosnia & Herzegovina
7. The Plitvice National Park in Croatia

Michael, Kouta and Jeroen

## [Balkans Expedition 2012 Travelogue Part 1](#)

by **Michael J Spraggon** » Sat Oct 27, 2012 9:31 am

Hi everyone,

Here is the first thrilling installment of the Balkans Expedition travelogue, the story behind the reports if you will.

(This is my first ever post so hopefully the attachment will upload properly.)

 [Balkans 2012 Travelogue Part 1.docx](#)

There will be about 6 further parts to follow every few days. These will be a bit shorter - about 2-3 pages each.

We hope you enjoy reading it!

Michael J Spraggon

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## **European Champion Tree Forum Balkans Expedition 2012: A Travelogue**

by Michael J Spraggon

### **Introduction**

I had been considering a trip to the Mzymta Valley in the Russian Caucasus for some time since reading tantalising reports of *Abies nordmanniana* growing to heights of over 70m or even 80m. After some email

discussions with Jeroen Philippona of the Netherlands and Kouta, a Finnish tree enthusiast, we decided that it was probably best (and safer) to leave these plans until after the Sochi 2014 Winter Olympics as the area seems at present to be a hot spot of development and environmental protest.

Besides which Jeroen and Kouta had already been planning an expedition, as members of the newly-formed European Champion Tree Forum, to the Balkans to survey some of the increasingly rare old growth forests of Europe and when Kouta asked me if I would like to join them I was obviously going to say yes. The plan was to have 3 pairs of eyes scanning for potential champions and if a 60m+ tree was found then I would climb it to provide a definitive tape measurement.

With our itinerary finally in place and having obtained contacts and climbing permits for at least some of the areas we were due to visit, our expedition began in the northwestern corner of the Balkans, near the Slovenian city of Maribor.

What follows is a travelogue, a day by day account of the places we went to or passed through, interesting people we met, things planned or unplanned that happened to us along the way and of course the exceptional trees and forests we explored.

It contains only the bare minimum of technical detail about the forests and ecosystems we explored, mainly because Jeroen and Kouta have covered this much better than I could have in their reports on each area, which can be found on the Native Tree Society website on the internet. I've also avoided going into the long flights of descriptive writing you might expect from 'real' travel writers, instead just putting in enough detail to give you a feel for the continuous and varied experiences you will inevitably encounter when travelling through so many extraordinary places in such a short period of time.

### **Day 1: Travel to Maribor**

At London Heathrow airport I'm relieved to find that my green pack does fit in the hand luggage tray, just, but the tense moment comes at the security check. Sure enough my bag comes through the x-ray machine and is diverted into the 'naughty' line, as is

the hand luggage of the young lady standing beside me. We are called to one side and have to unpack our things. Her transgression is a bottle of perfume; mine was eccentricity. With my best attempt to appear smiling and carefree I unpack, explaining to the official how the lead shot bags are used to install a rope up to 100ft up in a tree. The tension is diffused when she laughs and says 'Interesting hobby you've got there!'

Ljubljana Airport is modern but very small, serving a country of just 2 million people. The Slovenians are very proud of their cultural identity. Apart from a 4-year period under Napoleonic rule when Slovene was allowed to be taught in schools their language was suppressed by the ruling Austrian Empire. Today Slovenians are quick to tell you that Slovene is a very different language to Serbian so as I wait for Kouta and Jeroen to arrive (they are delayed due to a tunnel through a mountain in Austria being closed) I try out some of my hastily-learned internet Slovene on the girl at the information desk. Her laughter tells me that my pronunciation wasn't quite there and with a handful of correctly pronounced words learned I go outside and order an ice cream.

Jeroen and Kouta arrive within an hour and I squeeze myself and my two packs into the back of the thankfully air-conditioned Golf. This is the first time I have met either of them. Kouta is a fairly tall slim man in his early forties, originally from Finland, with a narrow face punctuated by a neat goatee beard, a resonant but staccato voice and, as I soon find out, an obsession for being precise - why else would he be so interested in measuring trees?

Jeroen is in his mid-fifties, of similar height with a slightly more laid-back manner. He says he looks a bit like Jack Nicholson but I think he bears a closer resemblance to Sting and this resemblance manifests itself in my consciousness as an intermittent soundtrack of songs by The Police playing in my head over the next 2 weeks as we trek through the various forests.

We can all speak German and English, which is convenient as these are the two secondary languages in much of the Balkans, and Kouta, who had previously been to some of the places on our itinerary four years ago, had also learned some basic Serbian.



Kouta insisted that our default language should be English as he wanted to practise his grammar which was fine with me.

Our Pansion for the night was in a village on the outskirts of Maribor, Slovenia's second city and the 2012 European Capital of Culture. It has 95,000 inhabitants and a notable ski-resort, which seems impossible to imagine in the 35° heat today.

We arrive slightly dehydrated and are promptly shown though to the bar where we are given a complimentary shot of very strong fruit liquor by the manageress who speaks German.

After dinner and messing about with the laser rangefinders trying to guess the heights of nearby trees and buildings we take a short walk through the village. There is a man-made platform on a pole about 10 metres tall by the roadside and on top are two Storks sitting on a nest full of eggs, oblivious to the noise of the traffic passing by right beneath them. It seems perfectly normal to J & K but I am very impressed by the spectacle and regret not having my camera with me.

We walk into a wooded area in the dark and immediately I see lots of fireflies for the first time in my life. The silent pulsing of these eerie green lights in the warm still air is enchanting and I can understand why woodland myths of faeries exist.

### **Day 2: Ribnica na Pohorju and the Sgermova Smreka**

After another short night's sleep due to the heat I'm up at 06:30. I'm more tired than yesterday now but there is no time to worry about that, I'm hitting the ground running today (probably not the best saying in this case). Today I'm climbing the tallest Christmas tree in the world.

As we travel west towards the town of Ribnica na Pohorju Jeroen calls our contact, Matic Kristan, son of the owner of the tree. He is very polite and speaks near perfect English and instructs us to meet him in the town square. When we arrive there is no one around except for a shy teenager of about 14 so we drive around and come back to the square only to

find that the teenager we had driven past was in fact Matic.

He shows us into the town hall where we are greeted by a welcoming party, including town officials, the land owners and the Deputy Major. We are shown into Mayor's office and sit at a long table with Slovenian and Municipal flags at one end. Jeroen is our spokesman, explaining who we are and the purpose of our visit. Blaž Kristan, a short, broad man with an even broader grin who is the father of Matic and husband of Damijana (whose late husband's father discovered the tree growing on his land 40 years ago) in turn tells us about the history of the tree. Matic translates for both parties with astonishing ease.

We arrive at Sgerm farm, a pretty, rustic place on the hillside with fine views across the valley. There is a huge St. Bernard dog walking around and lots of tiny kittens, which the dog seems to have adopted. To our surprise a film crew from Slovenian Television are waiting and with our expanding party now joined by Damijana's oldest son Grega (who will eventually inherit the farm and the tree), daughter Tanya and two local foresters, we drive in a convoy down the hillside to the tree.

As we descend on foot, Blaž points to a thick silver trunk near the bottom of the slope. "50 metres" he says. The tree is a silver fir, not the champion tree. Moments later a much larger trunk comes into view. I follow it up from the base...and up...and up. It doesn't seem to be getting any thinner. This must be it: the Sgerm Spruce.

The film crew start setting out their gear, and so do I. The crown of the tree within the 100ft reach of my Big Shot is dense and packed full of dead branches. Behind it the steep slope is densely packed with other tall trees and in front there is a thick understory of Beech. From one small patch of ground to the side I can see a small window of opportunity about 85 feet up. With the cameras watching I eventually get the line over the one limb I could see. Actually it passes over 2 limbs – the other is dead but is pointing outwards at a different angle which will help prevent the rope from sliding down the sloping live branch. I hang on the rope with Blaž who claims to weigh 100kg. It's a good anchor so up I go.

At 80 feet, dangling below the branch holding the rope, I look for the next live branch to put one end of my lanyard over. The next few limbs are dead and obscure the path of my throws. Eventually I decide to put the lanyard around the same branch as the rope so that I can surmount it can have a better shot at the next live branch. I unfurl my lanyard. This is the first time I've ever used my new system. It uses two hitchclimber pulley systems, one for each side of the lanyard. I had just had time to put it together and pack it before I left. I soon realise that I had tied the hitches on the wrong sides of the pulleys so while still dangling below the branch I have to take apart and rebuild my system. By now Jeroen shouts up "everything okay Michael?" "Oh yes! Just sorting my gear out." I shout back casually, although I'm secretly annoyed at having wasted so much time.

Finally I get onto the branch and begin climbing on my lanyard. This tree is very different to the tall spruces and Douglas firs back in the UK. For a start it is twice as old and the climate is drier. My style of climbing is to delicately weave my way around every branch and twig, rather than pushing through them. It is much harder in this tree, with dense thickets of dead twigs and branches in places and stretches of dead stubs in others, each perfectly adapted in its own special way for snagging the free end of my lanyard, and everywhere: dry abrasive lichen lobes, which are exfoliating my bare arms very effectively.

From about 130 feet onwards it's business as usual and the climbing is easy from here to the top. The feeling of excitement as the huge mast becomes thinner and I climb far above the surrounding canopy into the light is the same as it always was since I first reached the top of a tall tree nearly 30 years ago. This one is very special though – it's the first time anyone has been on top of the world's tallest Christmas tree. Perched just a few feet from the summit, where the trunk is no thicker than my wrist, I must be the highest fairy on Earth!



### Summit of the Sgerm spruce.

Fittingly, I begin unfolding my wand, a 3 metre long tent pole with the top section bent over so that I can touch the top of the leader shoot while the pole is vertical. Kouta (or is it Jeroen – hard to tell over the crackling) comes on the radio: "the owner would like a talk from the top". The first thing I can think of saying is "There's snow on top!" They don't understand, so I try it in German. They still don't understand. I say it again. Now they're confused. "I'm making a joke!" By now any chance of humour has long since evaporated. Then they seem to understand: "Can you bring some down?" "Yes" I say, "but it will have melted by the time I get down." Now they're confused again...I decide to get on with the task at hand.

The tape with the weight on the end is unwinding. I watch the numbers go by...48...49...50...51...the total height will be about 6 metres more than the tape measurement so when Kouta tells me to stop at 56.23 metres I know that this tree is every bit as tall as they said it was. Jeroen and Kouta still have to determine the distance from the bottom marker to the mid slope point on the trunk base and they refuse to tell me their laser height measurement either until I get down.



**Above: The view from the top. Below: Looking down.**



I finally abseil to the ground and, in a Pope-like gesture, kiss the ground only to end up with a mouth full of dirt and needles. As I look up Slovenian television is standing beside me filming it all. I'm asked to say a few words and manage some heartfelt drawl about how impressive this tree is and then someone, the Deputy Mayor (I think) hands me a can of beer: phew!

Someone asks me if I brought the cone down from the top. Now I understand the earlier radio confusion: they had asked for a *cone*, not a *talk* from the top, or *snow*!

J & K break the news to me: 62.26 metres (204.3 feet) - this is indeed the tallest reliably measured native tree in Europe and the tallest tree in Slovenia. The irrepressibly energetic Blaž declares that I'm

now co-owner of the tree and we are all invited back to Sgerm Farm for lunch where Blaž presents us with gifts and Damijana revives us with the best meal we've had for ages. It's going to be hard to leave this place but we have to be in Croatia by evening so reluctantly we say goodbye.



**The Sgerm-Kristan family and friends back at the farm.**

By early evening we have reached Zagreb, the sprawling industrial capital of Croatia, and take a short break in the main park. Sitting on the park bench, watching one after another of some of the most attractive women in Europe walking past, each a pristine picture from the pages of an up-market catalogue, I suddenly become conscious of my appearance. I'm covered in green dirt, my arms are scratched and raw, my hair contains enough lichen and algae for an undergraduate botany project and my filthy, sweaty, sap-stained t-shirt clings to my body. I try to smile at some of them and they glance dismissively to the side and keep walking.

It is dark by the time we arrive in the town of Kutina, where our hotel for the night is. After walking round the town 3 times to find a place that sells biscuits (because I'm hungry as always) I go to my room. It's been an extremely long day and each of us can't wait to get cleaned up and go to bed.

## [Re: Balkans Expedition 2012 Travelogue Part 1](#)

by **Michael J Spraggon** » Sat Oct 27, 2012 9:56 am

Here is a link to the TV article, as it appeared on a Slovenian rural affairs programme.

The article begins at 42:43 and lasts approximately 6 minutes.

<http://tvslo.si/predvajaj/ljudje-in-zem... 143078743/>

Michael J. Spraggon

## [Re: Balkans Expedition 2012 Travelogue Part 1](#)

by **edfrank** » Sat Oct 27, 2012 3:01 pm

The video is excellent and worth watching, even if not in English.

It can also be seen here on Youtube beginning at 42:57:

<https://www.youtube.com/watch?v=e9rs6YA4Ci8&feature=relmfu>

I am unable to download a copy of the video, but here are a few screen grabs from the video itself:





## The Sgerm Spruce – the tallest native European tree?

by **KoutaR** » Sat Oct 27, 2012 4:04 pm

NTS, The Sgerm Spruce (Sgermova smreka) in Ribnica na Pohorju, west of Maribor, Slovenia, is named after the farm where it is located.



Vista from the farm. Fruit trees, foreground; Norway spruce dominated forest, background.

The tree is quite well known and cited as one of the tallest (or even the tallest) Norway spruce (*Picea abies*) in the world. At an altitude of around 500m, the tall spruce is growing near the bottom of a valley in a slight side valley on the NW facing slope.

The forest was originally dominated by European beech (*Fagus sylvatica*), but Norway spruce and European silver fir (*Abies alba*) now dominate due to forest management. Beech and sycamore maple (*Acer pseudoplatanus*) occur, as well as common hazel (*Corylus avellana*) in the shrub layer.

The spruce is estimated to be 250 years old. The estimation is based on a ring-count of a neighbouring similar-sized spruce which was felled by wind.



Grega Sgerm, the owner's son; Blaž Kristan, the owner; and Matic Kristan, the owner's son, at the Sgerm Spruce. Also European silver fir sapling, foreground, and European beech, right.

Websites say that the last measurement in 2006 gave its height as 61.8 m. The owners, Blaž Kristan and Damijana Sgerm-Kristan, showed us the report of the measurer, Božo Koler from University of Ljubljana. We saw from the report that the Theodolite measurement had been done very carefully, but it was to the high-slope point, so the tree could be even taller as it is growing on a slope. The owners also gave us earlier height measurements:

1938: 51 m  
1980: 57.5 m  
1995: 61.7 m; DBH 108 cm

Another spruce on the opposite slope was measured by Koler as 54 m tall.

Laser measurements by Jeroen and Kouta gave 62.2 meters above the average soil level and 61.4 m to the high-slope point. We had been given permission for Michael to climb the spruce and this was the first time that the spruce was to be climbed. Over 10 Slovenians followed the climb: the owner's family, foresters, the vice mayor of the town, TV cameraman and reporter.



This is Jeroen's photo. The other photos are Kouta's. Part of the "audience". From the left: Matic Kristan, the owner's son; ?; Miha Mrakič, local forester; the town's vice mayor; Damijana Sgerm-Kristan, the owner; Grega Sgerm, the owner's son; ?; Blaž Kristan, the owner; TV cameraman.

From the summit, Michael measured the highest part of the tree with a folding pole and placed a marker at 4.50 m below the tip. The next part to the point about one meter above the high-slope point was measured by lowering a tape and was 56.23 m. As Michael descended, Jeroen and Kouta defined the average soil level (which was not an easy task!). It was 1.53 m and the high-slope point 0.96 m below the tape measured part of the tree. This gave the total height of the tree as **62.26 meters (204.3 ft.)** above the average soil level and 61.69 m (202.4 ft.) to the high-slope point. This is **the tallest reliably measured native European tree** we are aware of. The original top is still intact.



Michael climbing Sgerm Spruce at about 20 metres. Also young silver firs; sycamore maple foliage, left.

Girth: The CBH is 390 cm (DBH 124 cm) above the average soil level and 361 cm (DBH 115 cm) above the high-slope point.

A 48.4-meter silver fir grows nearby.

Kouta, Michael & Jeroen

## **Re: The Sgerm Spruce – the tallest native European tree?**

by **KoutaR** » Sat Oct 27, 2012 5:03 pm

*Robert Leverett wrote: What kind of precipitation falls in that region? How about temperatures? I'm wondering if the the climate there is similar to around Woodstock, VT where I have the two Norways at 140.5 and 140.0 feet in height. The Woodstock tree were planted around 1877. So in 135 years, they've reached 140 feet or 42.7 meters. If the Vermont trees can average no more than 4 inches of new growth annually, at an age of 250 years, they would be around 178 feet (54.4 meters). At some future date, the Norway may challenge the native white pine as the tallest northeastern species. Who knows?*

Bob, Climate charts for Maribor:

<http://www.worldclimateguide.co.uk/climateguides/slovenia/maribor.php>

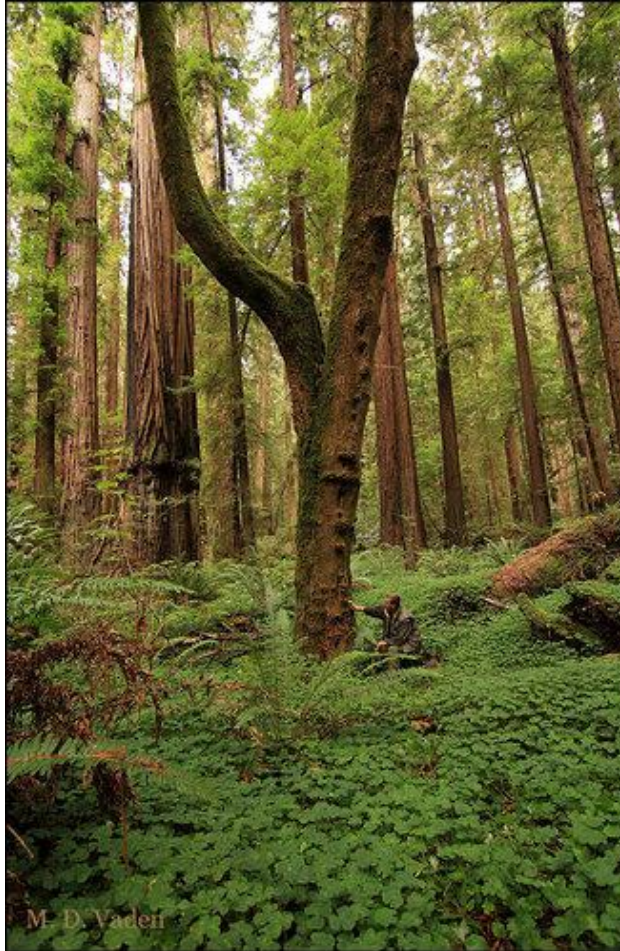
As the elevation of the Sgerm Spruce is ~200m higher, the temperatures should be ~1 degrees lower and the precipitation probably a bit higher.

Kouta Rasenan



## Maple Height Record - Humboldt Honey - 157.8 ft. (CA)

by **mdvaden** » Sun Oct 28, 2012 9:41 pm



Howdy y'all ... I'm typing from the coast redwood area, at the Curly Redwood Lodge. Earlier on the drive up, I called Michael Taylor about the Bigleaf Maple I found near Avenue of the Giants, which I finally measured this morning. It's one I previously estimated like 155' if memory serves, and mentioned in an earlier topic.

Here's the measurements, and **name** ...

### "Humboldt Honey"

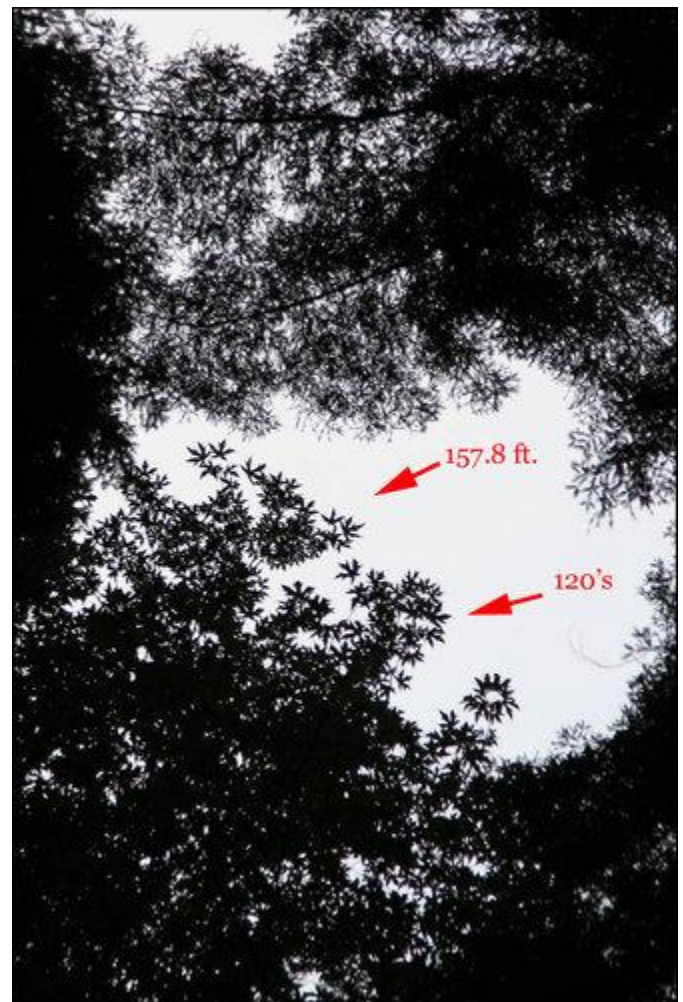
Acer macrophyllum / Bigleaf Maple  
Height 157.80 feet  
Circumference @ dbh 9.50 feet

Wouldn't surprise me if Zane Moore comes up with a rash of these now. Although, I'd actually like to hunt for more of these with Zane, or with Michael in 2013. A maple excursion.

I've plastered tree forums the UBC botanical forum with questions about Acer heights worldwide, and from what I've gleaned, there isn't one known taller. None anybody has mentioned anyway.

Here is the previous topic related to this maple

>>> <http://www.ents-bbs.org/viewtopic.php?f=144&t=4393>



M. D. Vaden of Oregon



## [Big Pines Hwy 89 \(Lake Tahoe\)](#)

by **Mark Collins** » Sun Oct 28, 2012 10:25 pm



After visiting the Kokanee Salmon, I drove past an awesome section of forest along Hwy 89 with several goliath trees.



Above is beautiful Emerald Bay.



The tree [to the left] above was the King of the Weekend. It's the first Ponderosa Pine I have found with a cbh greater than 22 feet. This tree measured in with a cbh of approximately 23 feet, 9 in. You can just barely see me standing next to the tree for scale on the right side. If anyone is interested, I recorded GPS coordinates of this weekend's trees as well.

## [Re: Big Pines Hwy 89 \(Lake Tahoe\)](#)

by **Don** » Sun Oct 28, 2012 11:43 pm

Mark-

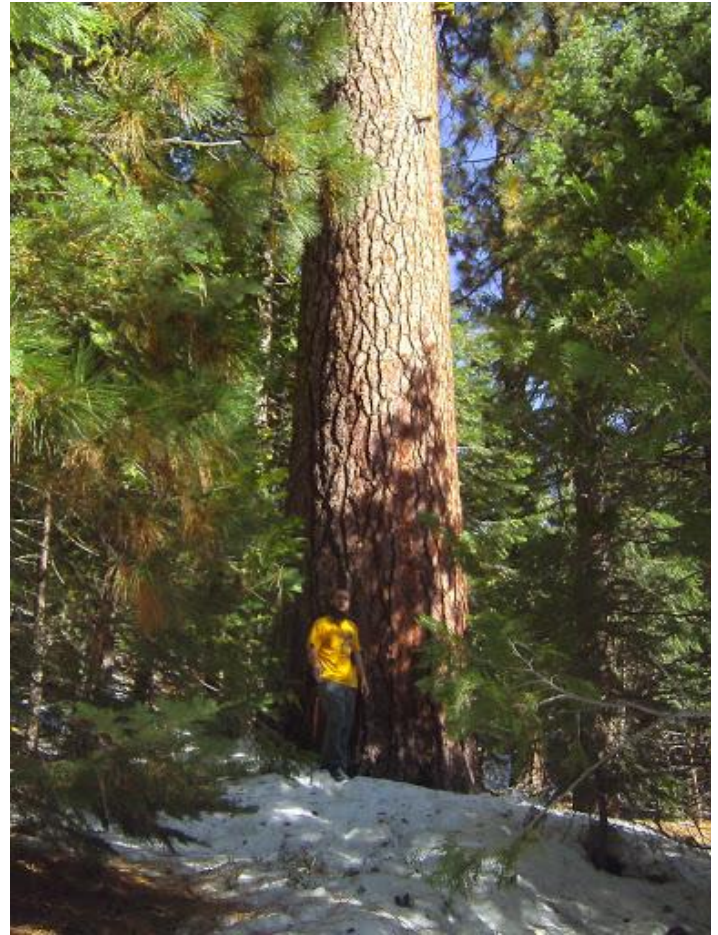
Recently walked among a cove of some giant western white pines (5-6' dbh, not near champs) in a cove near the Crystal Basin, North of Highway 50 out of Pollock Pines. No photos of them, but can add an interesting lake picture (even though a dry one...:>)



In an area known for harsh winters and occasional high winds, this top broke off during a storm, and was blown over 50' into this dry lake/pond, and stuck top down with some force...

## [A Few More Big Pines Along Hwy 50: Kokanee Salmon \(Lake Tahoe, CA\)](#)

by **Mark Collins** » Sun Oct 28, 2012 10:11 pm



(Big Sugar Pine: above)

I drove out to Lake Tahoe again this weekend to do a little tree hunting and to visit Taylor Creek. The Kokanee salmon are spawning this time of year. Turns out, peak spawning was about two weeks ago. The party was literally dying down when I arrived this morning.



(Big Red Fir: above)

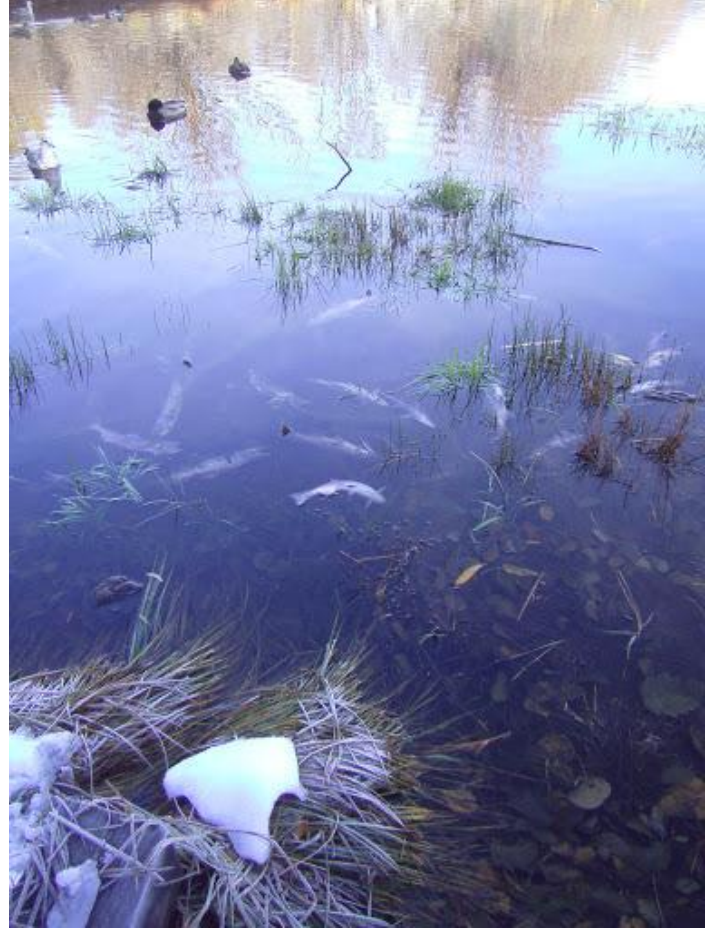


Snow already arrived in the Sierra this past week, but temperatures were quite warm this weekend during the day. Once again, the ponderosa pines grabbed my attention. I attempted the smell test on the last three tree photos. I did not smell the vanilla fragrance of the Jeffrey's. Also, the cones beneath them all were rather prickly.





The tree above is a fantastic giant growing right next to the road.



Taylor Creek is located along Hwy 89. It appeared most of the salmon had already spawned and passed away by this morning. There were a few pockets of activity remaining in the creek. In those spots, there were many ducks attempting to eat the fresh salmon eggs, and handfuls of bright red salmon thrashing about. The Kokanee Salmon are not native to Lake Tahoe. One account I read mentioned that it is believed that they were introduced in the 1940's.



## [Re: A Few More Big Pines Along Hwy 50: Kokanee Salmon \(Lake Tahoe, CA\)](#)

by **Don** » Sun Oct 28, 2012 11:57 pm

Mark-

Two special images! Few see Kokanees in California anymore, used to be nearly common. And even rarer is to see such large pines (ponderosas, and in image of pine along road, a Jeffrey in my opinion (brownish hue, shorter needles), if not a hybrid) in the Lake Tahoe area, as it was heavily logged during the previous two centuries. Nice country to be wandering in!

Don Bertollette

## [Climbing the biggest eucalypt in the world, Tasmania](#)

by **edfrank** » Sun Oct 28, 2012 7:22 pm

Climbing the biggest eucalypt in the world

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



Published on Oct 24, 2012 by IntoTrees

Climbing the largest eucalypt in the world (by volume), in the Florentine Valley of Tasmania. Canopy scientists Prof. Steve Sillett and Dr. Bob van Pelt (and team, most of whom managed to avoid the

camera!) are engaged in an ambitious, long term project to study how giant trees grow and change over time. Here, they were carefully preparing an exact 3D map of the entire canopy of this vast and beautiful tree.

## [Re: Middleton Oak, SC](#)

by **bbeduhn** » Mon Oct 29, 2012 2:49 pm

The Middleton Oak.

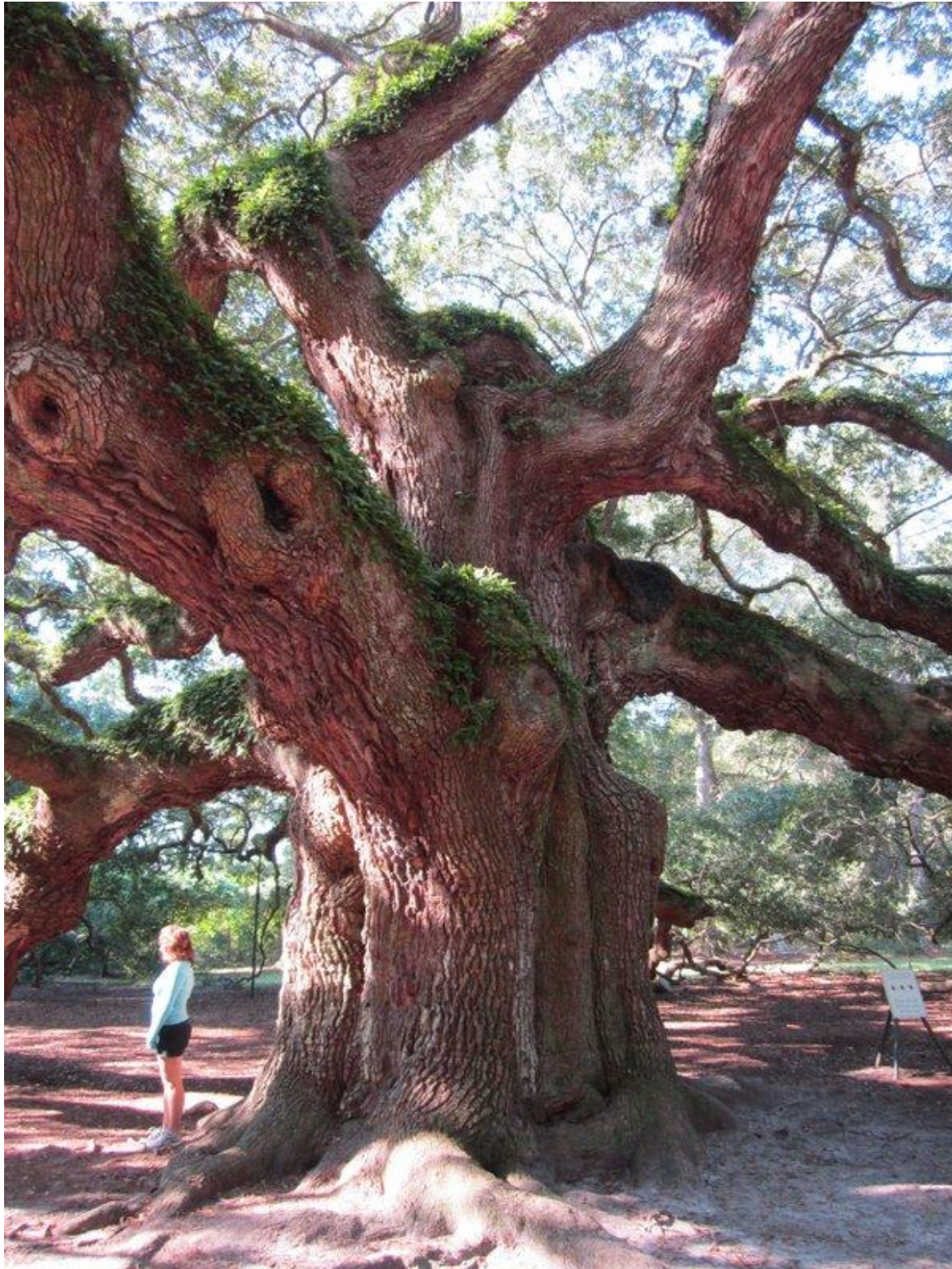


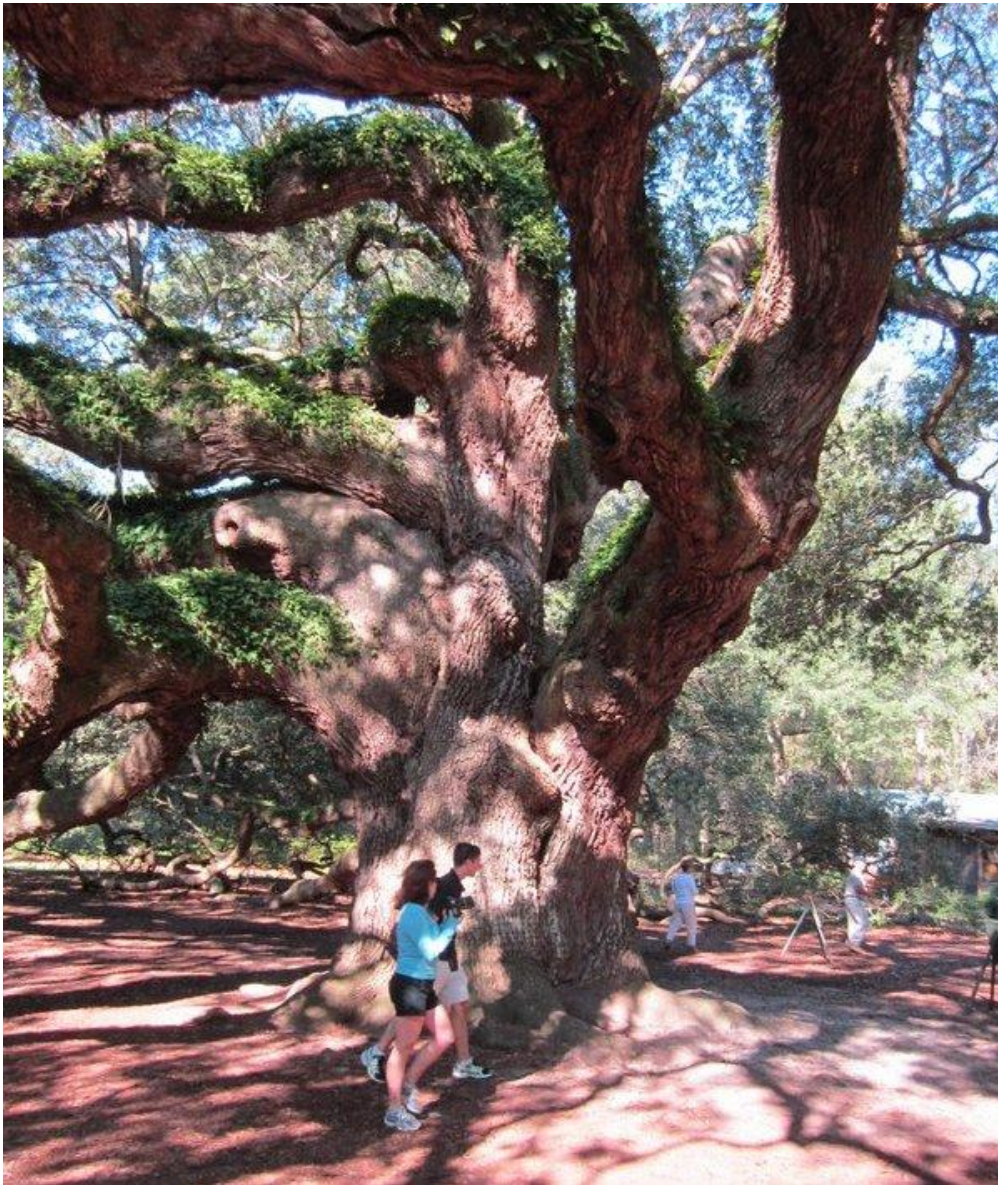
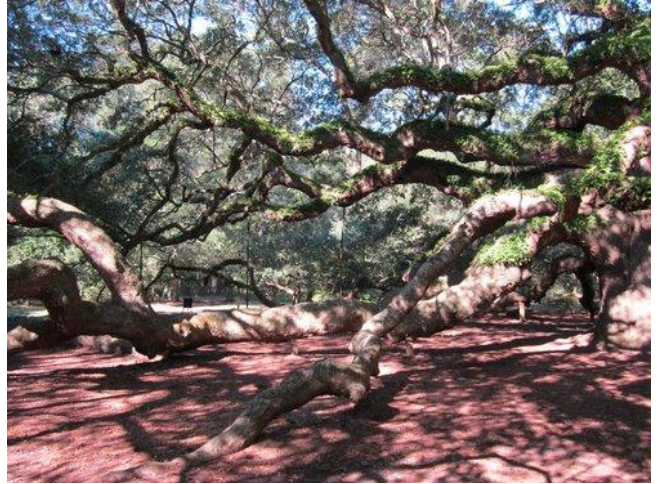
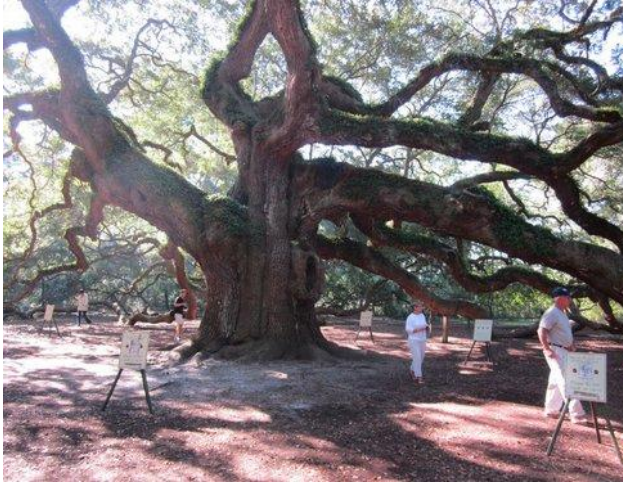




**Re: Angel Oak, SC**

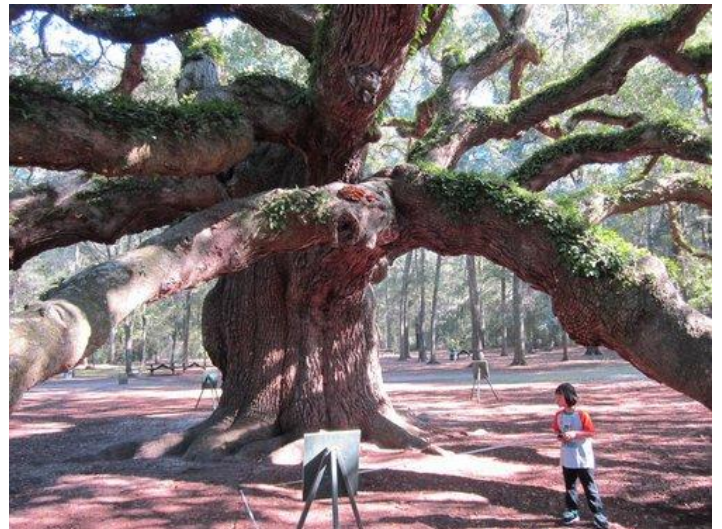
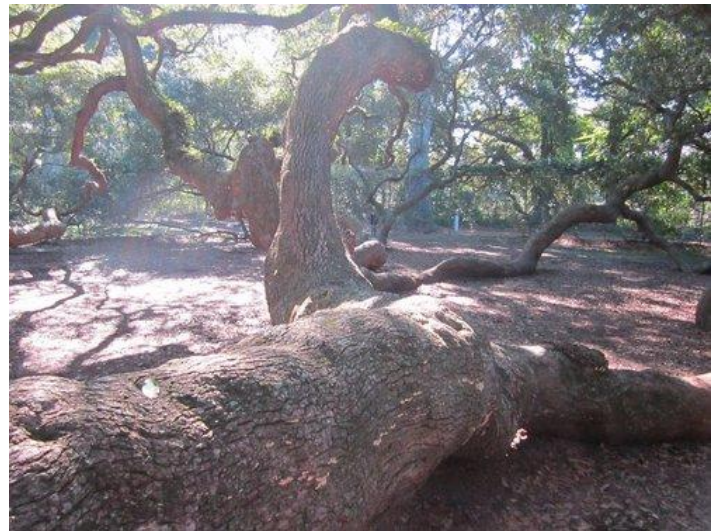
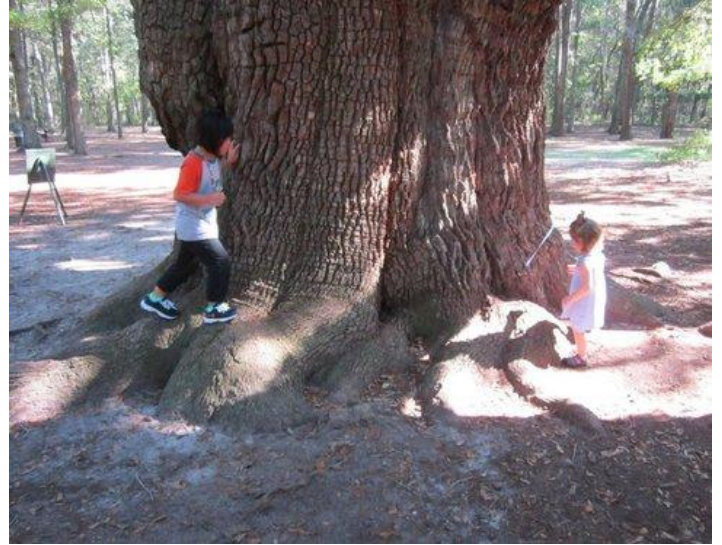
by **bbeduhn** » Mon Oct 29, 2012 2:58 pm







Budding tree measurers



## Criterion RD1000 testing

by **dbhguru** » Mon Oct 29, 2012 4:51 pm

NTS, After a long testing period of LTI's TruPulse line of hypsometers, and figuring out how to get the most out of those instruments, I'm turning my attention back to an old friend, the Criterion RD1000 Relascope-Dendrometer. The reason is that I need to be able to model trees with this instrument better than I've been able to do in the past. It is a more efficient instrument to use for trunk modeling than the reticle device, although the Macroscope will always have a role. I'm rusty on the RD1000, but am starting to re-familiarize myself with its strengths and weaknesses.



The renewed interest in modeling follows from recent conversations with Dr. David Foster, Director of the Harvard Forest, Harvard University's forest research center. It looks like I'll be measuring trees for Harvard Forest in support of several high profile research projects in which improved accuracy of tree measurements becomes important. I'll explain more about my participation as time goes on, but in a real sense, it is an affirmation of all we've been doing to

put truth into the tree numbers. Dr. David Orwig, a Harvard Forest researcher and friend vouched for the work that we do in NTS to improve measuring accuracy over conventional methods and how that would work to HF's benefit. Most gratifying.

Now to what I did this morning (as Monica and I wait the impact of Sandy), I set up an experiment, shooting the trunk of a black oak in our yard. I put an orange marker in the center of the trunk and reflectors on the edges of the trunk. With a set of calipers, I measured the thickness of the trunk as seen from the measuring spot and at other points around the trunk. I also used a D-Tape to get an average diameter. Here are the statistics:

1. The distance from instrument to orange marker was 27.7 feet
2. The D-tape gave 19.0 inches at the orange marker
3. The calipers gave 17.6 inches centered on the marker and 19.3 inches at 90 degrees rotation
4. The credible RD1000 readings were 17.4, 17.7, and 18.0. I chose the middle one, or 17.7 inches in the direction of the marker
5. The trunk leans in the direction of the instrument 0.5 feet from base to the 5.5-ft height of the marker.

So what is to be made of the above measurements? The trunk is elliptical in shape. Its cross-sectional area is approximately  $\pi \times (17.6/2) \times (19.3/2) = 267$  sq inches. Using the D-Tape result, which ignores the elliptical shape of the trunk, the cross-sectional area calculates to 284 sq inches. The dendrometer calculation of diameter centered on the marker yields 246 sq inches.

The accuracy of the dendrometer for calculating trunk width centered on the marker is  $(17.7-17.6)/17.6 = .994$  or 99.4%. If the lower dendrometer measurement of 17.4 inches is used, we get 98.9% accuracy, and 97.7% if the 18.0 reading is used.

Having no other information, the 17.4, 17.7, and 18.0 readings can be treated as equally likely.

What does all this mean? Well, the dendrometer performed pretty well in this test, but using its determination of diameter, we underestimate the

cross-sectional area by 7.9%. Had we gone with the D-Tape measurement, we would have overestimated the area by 6.4%.

There is no easy path to Nirvana. The trade-offs that manufacturers of equipment often implement exact a price on accuracy. While there is no way to avoid having to make tradeoffs, unfortunately, the user seldom knows what the tradeoffs are or how to work around them even if they are known. And ignoring the actual geometry of a tree exacts its separate price.

In our efforts to eliminate sources of error, today a little present arrived from Michael Taylor. Michael sent me a remote trigger to use with my TruPulses. I can now eliminate any negative impact associated with pressing the fire button on the TruPulse. Thanks Michael.

Robert T. Leverett

### [Re: Criterion RD1000 testing](#)

by **Don** » Mon Oct 29, 2012 6:53 pm

Bob-

It's something I've wondered about before, and now that you're focusing on dbh/girth, it seems timely to pose my question.

Is there a distance where, say 95% of the error encountered by a dendrometer from not being able to see the actual points on the tree that for example, a set of calipers contacts the tree...let me try that again.

Standing 2 foot in front of a tree, a dendrometer (if it could focus that close) would drastically mis-measure the tree's diameter. At four foot in front of tree, less error would result. At 10 foot, even less error.

Is there a distance where the error is less than say 5%?

Is there a simple function that resolves to this level of error, for any tree's diameter?

And are these distances reasonable in the context of Harvard Forest's measurement objectives?

And for error less than 1%?

I realize that at some point, the tree's out-of-roundness introduces more error than the dendrometer's inability to resolve parallax issues?

Don Bertolette

### [Missing part of diameter calculations for Don Bertolette](#)

by **dbhguru** » Tue Oct 30, 2012 1:35 pm

Don,

The attached Excel workbook has the calculations needed to answer the questions you posed. You can use the green cells to test. For example, you might enter a distance to the middle of the trunk of 100 feet along with a radius of 6 feet (big tree) and see how much diameter that you'd miss. Then go to say 20 feet and test again.

 [MissingDiameterDetermination.xlsx](#)

Robert T. Leverett

### [Re: Missing part of diameter calculations for Don Bertolette](#)

by **dbhguru** » Tue Oct 30, 2012 8:29 pm

Don,

The spreadsheet table allows you to play what-if games. Put in a distance to the middle of the trunk and an assumed radius, and the result shows how much of the diameter or radius is not visible, both as an absolute amount and percentage of the diameter/radius. Just overwrite entries in the green

cells. The first formula is independent of the instruments used. It's just an exercise in the geometry.

**Derivation of percentage error formula**

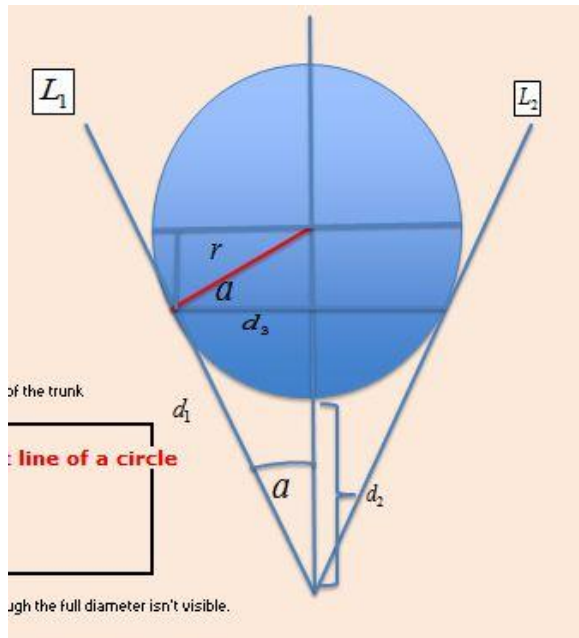
$$a = \sin^{-1} \left( \frac{r}{d_2 + r} \right)$$

$$d_3 = r \cos(a)$$

$$E = r - d_3$$

$$E_p = \frac{E}{r} 100$$

In the second formula, two equipment items are assumed: a distance measurer (tape or laser) and an angle measurer (compass or ?). The second formula actually computes the radius from the specified distance and angle. So, there is no unseen part of the radius if the trunk is circular, i.e. nothing is missed regardless of the distance. This may sound illogical, but it is a function of the properties of a circle. If the angle and distance are known, as shown in the diagram, the radius can be calculated even though the whole diameter can't be seen.



$$r = \frac{d_2 \sin(a)}{1 - \sin(a)}$$

Of course we both recognize that getting an accurate horizontal angle is the challenge. My TruPulse 360 has a digital compass, but its accuracy isn't that great. In a test this afternoon, my target had a diameter of 10.5 inches. Using the TruPulse and the second formula, I got 10.1 inches. That's a 3.8% error. I'm going to run more tests tomorrow. My guess is that the TruPulse will average a 3 - 4 % error on diameter calculations. The RD1000 is definitely better when you can read the scale (definitely a problem in low light). I anticipate that the RD1000 error will average at least 2% for reasons I'll explain in a future posting.

Robert T. Leverett

**[Re: Missing part of diameter calculations for Don Bertolette](#)**

by dbhguru » Fri Nov 02, 2012 9:00 am

Don, Just to follow up on my last post. The formulas included in the original post to allow what-if scenarios follow.

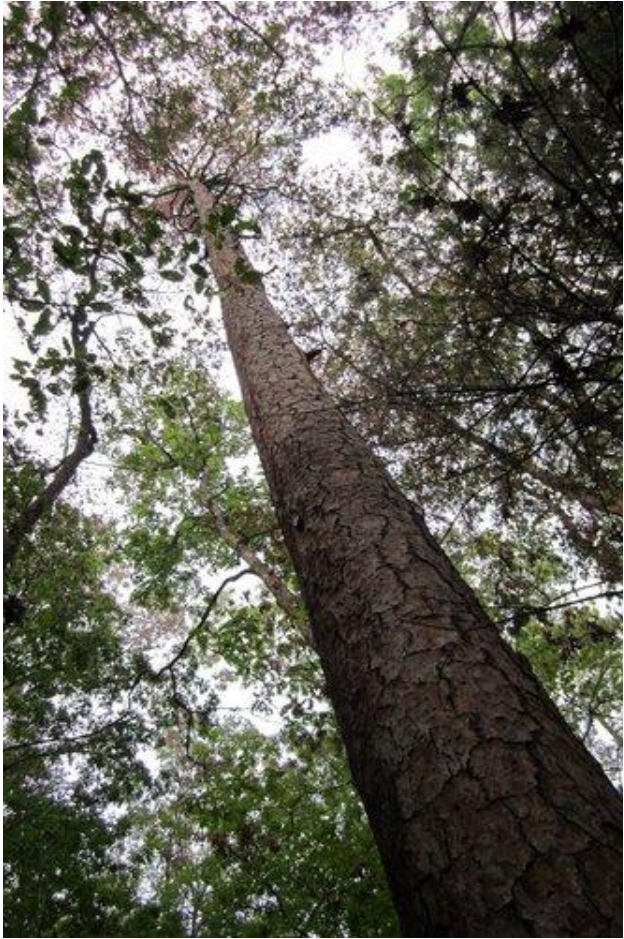
I re-emphasize that this sequence is to play what-if games. You assume a distance and a radius and see how much and what percentage of the radius can't be seen from that distance. It doesn't take long to see that you don't have to be very far away from a relatively large tree to see almost all of its diameter. For example, at 50 feet from the middle of the trunk, for a diameter of 8 feet, you only miss 0.022 feet or a quarter of an inch of diameter - hardly enough to worry about. Of course, the critical assumption is that the trunk is circular.

Robert T. Leverett

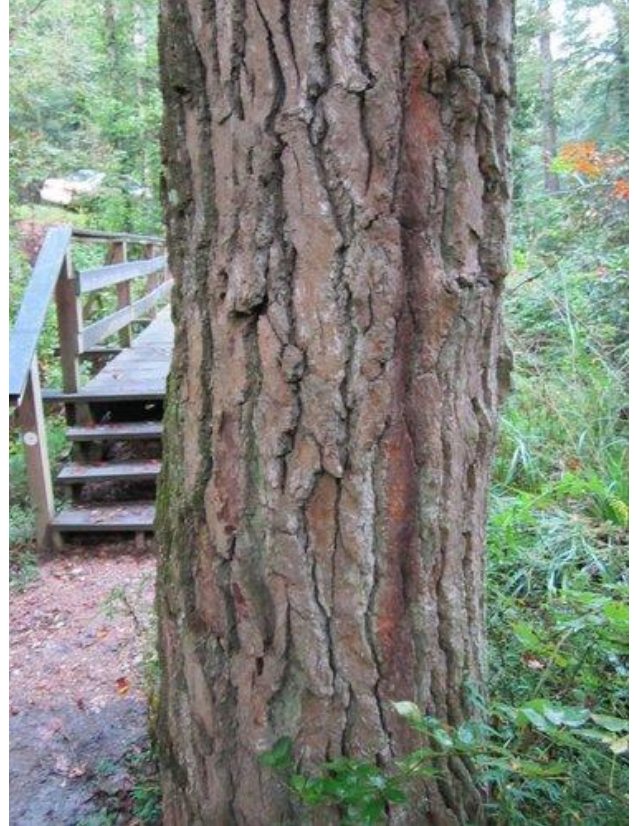


**Re: Asheville Trees**

by **bbeduhn** » Mon Oct 29, 2012 1:59 pm



124.6' shortleaf pine. It appears to be dead, however.



Ancient gum furrowed side



Ancient gum smooth side

## [Buckland State Forest, MA](#)

by **RyanLeClair** » Mon Oct 29, 2012 2:16 pm

Hey all, here are some photos from Buckland State Forest in Buckland, MA.



A tall Picea abies off by itself



My dad next to a tall Picea abies



Tall Picea abies



Two Larix decidua

RyanLeClair

## [Can anyone ID this tree, please?](#)

by **volcanomike** » Sun Oct 28, 2012 9:46 pm

Hello,

I just got back from Colombia, Peru, Brazil, and Ecuador, and saw this very cool tree a few places, from the Amazon to the Andean highlands at around 5,000'. This photo was taken in Manizales, Colombia, in the Andean Highlands at around 5,000' in the "Coffee Triangle" region.

Thanks for any help!

Mike McGuire, New Jersey



Manizales, Colombia



## [Re: Can anyone ID this tree, please?](#)

by **Steve Galehouse** » Mon Oct 29, 2012 1:46 pm

Norfolk Island pine, *Araucaria excelsa*,

## [Re: Can anyone ID this tree, please?](#)

by **volcanomike** » Mon Oct 29, 2012 3:38 pm

Wow, that was fast! Thanks guys! Yes, the mountains in this area are more mild in temperature, it does get cool at night, but no where near freezing. This is near Nevado del Ruiz volcano (where it does get very cold) but lower in elevation. I too at first thought it might be a Monkey Puzzle tree but I wasn't sure.

I guess it's not surprising this one's not a native species. There is nothing else quite like it in that area and there was never really more than one at any location. I do have some close ups of the foliage from when I was photographing birds on the trees and it is a dead on match for the Norfolk Island Pine. Thanks again for the help!

Mike McGuire, New Jersey

## Re: Can anyone ID this tree, please?

by **fooman** » Mon Oct 29, 2012 5:06 pm

It's not a Norfolk Island Pine, the juvenile form has a much more triangular appearance, in both the overall form and distribution of foliage. Branching is horizontal, or slightly upward (see [http://en.wikipedia.org/wiki/Araucaria\\_heterophylla](http://en.wikipedia.org/wiki/Araucaria_heterophylla)). The tree shown just looks too "shaggy" to be a Norfolk Island Pine.

It does look like a member of the Araucaria genus. Colombia is a bit too far north for natural range, so could be anything. Definitely not a monkey puzzle, or Parana Pine (the two native South American Araucaria species). I'm leaning towards Cook's Pine (*A. columnaris* - [http://en.wikipedia.org/wiki/Araucaria\\_columnaris](http://en.wikipedia.org/wiki/Araucaria_columnaris)) or maybe *A. nemorosa* ([http://www.conifers.org/ar/Araucaria\\_nemorosa.php](http://www.conifers.org/ar/Araucaria_nemorosa.php)). Both from New Caledonia, although the former is often sold as Norfolk Island Pine.

Thanks to Google Street View and the Wellington City Council, I bring you the following visual comparison:



Juvenile Norfolk Island Pine

And a few metres away:



Juvenile Cook's pine

The little kink in the trunk is also a signature of the Cook's pine. The Cook's pine is generally narrower in form and has denser foliage than the Norfolk Island Pine. Hope this helps,

Matt Smilie

## Re: Can anyone ID this tree, please?

by **fooman** » Tue Oct 30, 2012 4:13 pm

To follow myself up, if anyone is interested in a comparison between *A. heterophylla* and *A. columnaris*, there are a couple of good web pages out there:

<http://tree-species.blogspot.com/2007/12/norfolk-island-pine-vs-cook-pine.html>

and Prof. Wayne Armstrong's website has a comparison within a broader discussion of Araucaria at:

<http://waynesword.palomar.edu/ecoph27.htm>

At the bottom of the page of the last link is a striking comparison between the two species.

Cheers,  
Matt Smilie

## [Reforming the Rocky Mountain Native Tree Society?](#)

by **edfrank** » Tue Oct 23, 2012 10:06 am

Before the actual creation of the present day Western Native Tree Society

[http://www.nativetreesociety.org/wnts/wnts\\_origins.htm](http://www.nativetreesociety.org/wnts/wnts_origins.htm) as a chapter of the larger Native Tree Society,

many people had toyed for years with the idea of creating a parallel organization to ENTS for tree hunters in the western United States. Don Bertolette provides a more detailed overview of the history as a guest editorial in the July 2011 issue of eNTS Magazine. That discussion is also reprinted here:

<http://www.ents-bbs.org/viewtopic.php?f=159&t=2818> Some of the discussion before Don Bertolette took the helm of WNTS concerned the name for the western branch of the organization. One of the suggestions had been the Rocky Mountain Native Tree Society (RMNTS). I personally pushed for Western Native Tree Society as a better parallel for ENTS.

The western United States is a vast area representing thousands of square miles of rugged terrain. People like Michael Taylor, Zane Moore, and Mario Vaden are doing wonderful things in California with tree measurements. Western tree hunters like Chris Morris and many others have posted on the region. Don himself is coordinator of the Alaska Big Tree Program <http://www.akbigtreelist.org>. Others have visited the area and made their contributions. We have a growing membership in the region and are collecting data that includes measurements of the tallest trees in the world and the oldest trees in the world.

The membership is growing – but growing slowly. I wonder if we would be better off as an organization to try to create another chapter of the Native Tree Society centered on the locus of interest in the Rocky Mountains. We could capitalize on the interest created by Bob Leverett’s western trips and the WNTS rendezvous held in Colorado over the past few years. We have a beginning with contacts within the US Forest Service, retired forest service members, and groups such as the Great Old Broads

for Wilderness.

I propose we create a third chapter of the Native Tree Society under the previously suggested name Rocky Mountain Native Tree Society. This is not meant as a reflection on the excellent work being done by the members and officers of the current WNTS, but just an attempt to take advantage of the opportunity we have in the Rocky Mountain region.

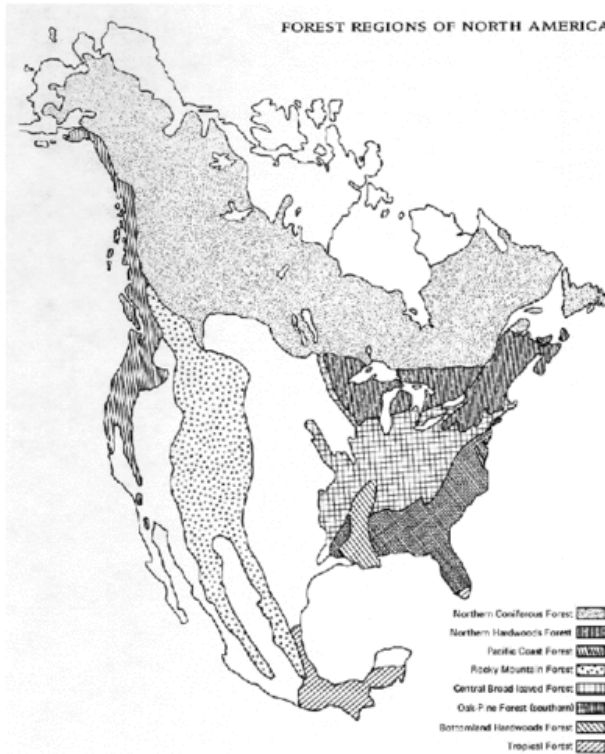
From an ecological standpoint the two areas are distinct. Many of the giant trees on the west coast – from giant redwoods, sugar pines, to western red cedars are found only in the western-most states along the coast. The temperate rainforests are restricted to the coasts of Oregon, Washington, and British Columbia.



Sugar Pine ranges

Another listing

<http://www.encyclopediaofforestry.org/index.php?title=BioEco12> shows the forest types of the North America:



Forest Types of North America (Young and Giese 2003).

Young, R.A., and R.L. Giese (eds.). 2003. Introduction to Forest Ecosystem Science and Management. 3rd edition. John Wiley and Sons. 560 p.

We could nitpick about the classification schemes and boundaries, but the diagram makes it clear there is a distinction that can be made between the two regions. The article breaks the two regions under discussion into the Rocky Mountain Forest Complex and the Pacific Coast Forest Complex....

For our purposes we could fudge the boundary of the chapters. There is overlap of the ranges of some species, but that doesn't really create any problems.



#### Western Red Cedar

The RMNTS would include - the Rocky Mountains and eastward to the eastern edge of the Great Plains. The WNTS would include the Pacific Coast Forest Complex, the Great Basin and areas eastward to the base of the Rocky Mountains. It would also include the boreal forests of western Canada and Alaska.

This is my suggestion. I am trying to work on the organizational structure of the organization so that it both promotes our own goals, and presents a professional appearance to people outside of the organization. I think this idea would help on both of those fronts. So what does everyone else think? Let the hate mail begin.

Edward Frank

## [Re: Reforming the Rocky Mountain Native Tree Society](#)

▣ by **dbhguru** » Tue Oct 23, 2012 7:52 pm

Ed, You've stolen my thunder. I had begun to think along those lines because of the support we've gotten from people in Durango, and my desire to capitalize on it. The West Coast is in the best of hands, and the tree confirmations there area on an unequaled scale. With Michael in California and Don in Alaska, the far West is covered. But my belief is that people in the Rockies aren't comfortable being lumped in with the West Coast, because the scale of the trees is so much diminished. It's apples and oranges.

Perhaps the biggest reason to think seriously about establishing a Rocky Mountain chapter is that there is a lot of energy and enthusiasm that can be generated locally. For example, I'm confident that the Great Old Broads for Wilderness would support the move and contribute time and energy. They move mountains. Most of them are retired, but you'd never know it. In addition, we have the Forest Service connection. It is a win-win situation.

I'll contact some of the people I know in Durango and see if my sense of their willingness to support the idea is on target. It's all exploratory at this point, but I really don't want the opportunity such as I think we have slip through our fingers.

Robert T. Leverett

## [Re: Reforming the Rocky Mountain Native Tree Society](#)

▣ by **Don** » Wed Oct 24, 2012 12:50 am

Anybody interested in my take on this? Or Michaels? Or the other steadfast WNTS members?

Don Bertollette

## [Re: Reforming the Rocky Mountain Native Tree Society](#)

▣ by **dbhguru** » Wed Oct 24, 2012 10:00 am

Don, Of course we're interested in your thoughts. The idea is conceptual. Ed, got ahead of me on this one, and my enthusiasm showed through. So, I jumped on the idea. I find merit in Ed's suggestion because Durango has developed into a center of activity that can grow.

The Rockies are isolated from the West Coast with its giant trees. With the rest of you taking care of the big trees, I have no worries about sustained activity for California, Oregon, and Washington> Michael Taylor is a tree-measuring machine, and will produce, no matter what for the region he covers, but the Rockies are another matter. Let's face it, Don, outside of my annual western trips, nothing happens for that vast region. But I believe that Durango can change that. There are local people in southwestern Colorado with an actual big tree interest that can be stimulated and activity can be sustained beyond my annual visits. That's what the chapters of the Native Tree Society should be about. Chit chat on the BBS is fine, but it doesn't go far enough. We need people to measure trees, organize events, draw in other people, etc. The Durango people just may be up to the task.

There are other avenues of development, e.g. partnering with the champion tree coordinators, but you'll recall Idaho. I also tried Colorado. Nothing there. Duds. So if we really want to develop the organization and increase the activity and outreach, don't we need to take advantages of the opportunities when they avail themselves? We can debate Ed's idea fully. It is still a concept. As I said, I jumped on the idea, but it is still just a developmental concept.

Robert T. Leverett

## [Re: Reforming the Rocky Mountain Native Tree Society](#)

▣ by **Chris** » Fri Oct 26, 2012 3:06 am

*To be devil's advocate:*

Is something like the name "Western" as opposed to "Rocky Mountain" really reducing the willingness of people to join in/explore/whatever? Is that a major sticking point? It isn't like there is so much measuring and posting going on that someone that is only interested in forest of the southern Rockies is going to be overloaded with everything else going on. If there are a group of people in SW Colorado, why not be even more local? Why not the southern Rockies Native Tree Society?

I hope I don't step on anyone's toes, but there are more to trees than "heights and girths". Trees and forest attract people for a variety of reasons. To split off a group for the reason that some people feel "not comfortable" because someone else has "bigger trees" seems odd to me. People in the east managed to post from various places despite the fact no one measuring in Minnesota is going to come close to western NC in terms of height. I don't think people have problem with girth envy whenever Larry posts another fat Live Oak.

I think there is just as much unity between "Rocky Mountain" and "Pacific" forest as there are between various eastern forest types. Ponderosa Pine, Lodgepole Pine, Douglas Fir span both [although via different subspecies] as important parts. As you move north, the distinction increasingly dissolves. There are places in Idaho and western Montana that can be wetter and "Pacific" or drier and "Rocky Mountain" based on altitude, aspect, soil, etc.. . The Pine-Oak woodlands of the foothills of the Sierra Nevada have more (structurally) in common with the Pine-Oak woodlands of the Rockies of New Mexico than some temperate rain-forest of Washington.

Chris Morris

## [Re: Reforming the Rocky Mountain Native Tree Society](#)

▣ by **dbhguru** » Fri Oct 26, 2012 12:07 pm

Chris, Not to worry. You are not offending anyone - certainly not me. Basically, this is about marketing - whatever works.

In terms of points of view, I'm sure we have people spanning the spectrum. Some will find the larger organization more attractive because they may see it as giving them the opportunity to brush shoulders with the elite of the elite. Others will take a local view. Still others will express no opinion at all. So, this is about going where the interest manifests itself, and in what form. It isn't about heights and girths any more than photography, music, or some other facet of tree awareness. It is about tree interest, however that interest manifests itself. Obviously, I push measuring, but value other contributions just as much.

Having spent a lot of time in the Rockies, I can say fairly confidently that NTS-style tree awareness lags. People in that province are understandably very much into mountains and canyons, and distant horizons, and conscious of them in all kinds of ways, but trees? Not very much. Durango may afford us an opportunity to develop a center of heightened awareness for native tree species, capitalizing on the superlatives of the region. But does a rise in local interest, ipso facto, suggest a local NTS chapter? Probably not, but if local people want one, why not? It is an idea worth testing.

We can always take the big, big picture view and focus only on NTS, forgetting, ENTS, WNTS, and any other potential chapters. If that works, then fine, but if it doesn't, it is back to drawing board, and that means marketing.

Ed has created us an extremely flexible cyberspace home. To newcomers it can seem endlessly deep, but it works and I wouldn't want to lose any of its features. We'd miss them. And if we decide to create more chapters, I'm sure Ed can make it happen. But I absolutely do not want to create work for Ed just to test a concept, so the idea of RMNTS will stay in the



conceptual realm for now. Additionally, if Don and Michael absolutely do not want a RMNTS, for whatever reason, then I'll honor their wishes.

Robert T. Leverett

## [Re: Reforming the Rocky Mountain Native Tree Society](#)

▣ by **Don** » Mon Oct 29, 2012 7:49 pm

Bob/Ed/Chris/Michael/NTS-

I suppose the only thing I'm absolute about is not being absolute about anything...

That said, my brief response here will be more of a ramble than a rant, and not likely to attain the impressive professional offering from Ed (good work that!).

First, from a purely personal point of view, I was initially attracted to the acronym RMNTS for it's pure elegance in dealing simultaneously with:

- 1) the acronym Rocky Mountain Native Tree Society (RMNTS), and
- 2) the descriptive word remnants, for those few remaining species that draw upon DNA from another time and are only found where the environmental/climatic conditions remain sufficiently to sustain them, where others weren't able to prevail. Indeed synonymously, literally relicts from times passed.

But not being a resident of the Rocky Mountains, I was easily persuaded to go with WNTS...a wider geographic area, one I have had exposure to, through my career and of my own special interests.

I have often posed to Ed, are we not facing the dichotomy of whether we should organize on the basis of whether we want to 'lump' or 'split'. I have in the past been a willing splitter where obvious gains would be made by doing so. I see the current inquiry as bringing us to a dichotomy, but I am not sure where obvious gains are accomplished. I can see the

organizational neatness of having chapters ranging across the US, but in my humble opinion, I'm not even sure that ENTS has a large enough pool of active members to power a chapter based organization.

I see Bob's perspective, wanting to present our efforts in the most attractive (read productive, growing) package. Towards that end, I recognize that WNTS has not grown by leaps and bounds and I take responsibility for the lack of abundant growth. I AM pleased with the quality of recent western members and their champion bagging prowess, and will do better about providing recognition for them, although they are very much self-driven folks and seem to eat and sleep big hunking behemoths for breakfast. I will however go with the flow, as it has been my pleasure to have had an association with the bigger picture that NTS has so well displayed.

A quick comment for those paying attention to the Crystal Basin District near Lake Tahoe...Google has some WONDERFUL satellite imagery with resolution sufficient to identify individual trees, and BIGGER BRANCHES...if you have any kind of competent computer/graphics, download Google Earth (I have it on my iMac 27's harddrive, but am pleased with getting it online, with my MacBook Pro 15" laptop). It's a wonderful aid to tree hunters when high res imagery is available.

Don Bertollette

## [Re: Reforming the Rocky Mountain Native Tree Society](#)

▣ by **dbhguru** » Mon Oct 29, 2012 9:03 pm

Don, Excellent response and much appreciated. Now here's the kicker. I sheepishly confess that the opposite side of the coin is now impressing itself into my aging brain. I really am not confident that splitting would serve the intended purpose. It could be no more than a flash in the pan. But at some point should we move forward (with your and Michael's concurrence, of course), a regional chapter under WNTS might be more realistic than a coequal entity.

I think we would all agree that the desire for a regional chapter of WNTS in Durango should flow from a truly local interest, as opposed to the unbridled enthusiasm from yours truly. And in rethinking the matter, I honestly don't know if what happened last summer in Durango reflects a genuinely local interest as opposed to their response to Robert T. Leverett, alias Professor Harold Hill, waltzing into town in high sales mode.

Robert T. Leverett

### [Re: Reforming the Rocky Mountain Native Tree Society](#)

by **edfrank** » Mon Oct 29, 2012 9:15 pm

Don and Bob, I would like to suggest perhaps a regional survey would be an appropriate way to go. On this page:

[http://www.nativetreesociety.org/projec ... ojects.htm](http://www.nativetreesociety.org/projec... ojects.htm)

we have a listing for surveys, where surveys are:

*The Native Tree Society is involved in a variety of projects and surveys of various scales, scopes, and durations. A "project" involves an investigations of a particular topic, species, or activity, while a "survey" is an investigation of a particular site, area, or region. Some are long term ongoing investigations in which a particular site may be monitored for years. Others involve studies of a series of sites in a particular region, or studies of a particular species. Some may be completed in a handful of trips while others may require dozens. Some involve many people while others are driven by the efforts of a single individual. In all cases the goal is to complete the project using the highest scientific standards.*

Their purpose is to give recognition and structure to projects involving tree measurements in a particular area or region. They can be structured internally however the participants want to structure them.

Edward Frank

### [Re: A Few More Big Pines Along Hwy 50: Kokanee Salmon \(Lake Tahoe, CA\)](#)

by **Mark Collins** » Mon Oct 29, 2012 11:00 pm

James, there are surprisingly large and tall pines all around Tahoe's west side. It's been a year since I've been on the east side of the lake and I wasn't looking for trees at the time so I can't say for sure what the trees are like there. I remember it being drier on the east side.

Michael, the sugar pine had a cbh of 20 feet, 5 in. The red fir had a cbh of approximately 25 feet, 3.5 in. The red fir was not an especially tall tree, but it was still intact and had a live top. I don't know if the red firs are on your radar at the moment, but there appeared to be some really tall ones growing before and after the 50 descends towards Myers. Also the town of Tahoe Pines seemed to have some extremely tall firs growing there.

Mark Collins

### [Re: A Few More Big Pines Along Hwy 50: Kokanee Salmon \(Lake Tahoe, CA\)](#)

by **M.W.Taylor** » Mon Oct 29, 2012 11:06 pm

Mark, Red Fir is high on my priority list. The tallest known is about 250'. Could there be an 80m+ (262.4') red fir out there somewhere? I think there is one. Currently the USA is tied with Australia for total # of tree species over 80m. An 80m+ red fir would put USA back in the lead.

Michael Taylor

## Re: Biltmore Estate Trees, NC

by **bbeduhn** » Tue Oct 30, 2012 9:33 am

Another update:

### Two Ponds Grove

Tsuga canadensis	Eastern hemlock
123.5'	4034
128.6'	4029
127.3'	178
125.3'	177
125.9'	176
128.6'	4030
127.3'	4252
129.3'	4509
122.4'	no#
130.3'	no#
128.0'	no#
140.0'	no#

Metasequoia glyptostroboides	Dawn redwood
28.4'	
26.4'	
28.7'	
30.3'	
38.0'	

I'd guess they're 8-12 years old.

### Hill Grove

Metasequoia glypt.	D redwood
77.9'	
76.3'	
76.0'	
77.8'	
79.4'	
79.0'	
80.6'	

missed one

I spotted these up the hill from the gardens. They appear to be the Sheridan spire variety, very lanky and very young.

### Garden

Metasequoia glypt.	D redwood
65.3'	

Cryptomeria japonica	Japanese cedar
63.1'	
Cunninghamia lanceolata	China-fir
81.8'	
87.8'	
Abies homolepis	Nikko fir
98.4'	
Taxodium ascendens	pond cypress
89.9'	

### Walnut Grove

I had better shots at the dawn redwoods and the walnut crowns with the leaves off. There are two large walnut trees which I'd had at NLT 123' and NLT 129'. I trekked up the hill to get a good shot at their crowns but couldn't site the bottoms so I shot the tops and bottoms separately and planned on adding them. When I got back down, I realized I'd confused my crown with another walnut. There were, in fact five walnuts in the grove. Since I wasn't certain exactly what I'd measured, it was back up the hill again.

Metasequoia Glypt.	D redwood
108.8'	1874 formerly 95.1' open shot revealed true top.
110.4'	no# formerly had 112.5'. May have hit walnut branch before.

### Juglans nigra L to R in the grove

137.5'	
NLT128'	I got 123.3' so I didn't hit the top
109.6'	
109.3'	
110.5'	

After the walnuts, I spied a few nice shortleaf pines. They weren't easy to reach. I had to go through, of all things, a hemlock hell. This was a welcome sight as there just aren't many of these in existence. They're regenerating profusely in this grove.

Pinus echinata	shortleaf pine
~92.7'	
~110.0'	
~113.8'	

I couldn't hit the bottoms and the tops at the same time and there's no good point of reference on the trunks. Still, these are the two tallest shortleafs I've

found at Biltmore so far.

Nikko fir update  
formerly 115.1' now 116.7' 4441

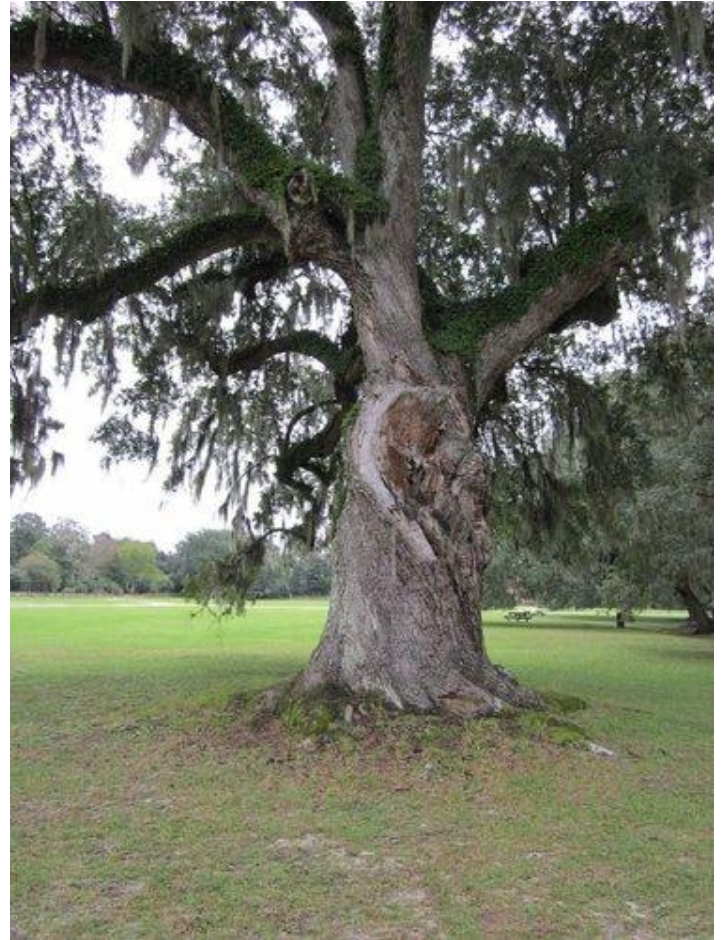
Brian Beduhn

### [Middleton Place, SC](#)

by **bbeduhn** » Tue Oct 30, 2012 10:24 am

The Middleton Oak is what drew me to this property, but there's much, much more to see. In the not too distant future it will not be the largest tree on the property. It has two challengers which are significantly younger. One appears to be a double but is adjoined at 6' above grade. I found 6 more 20 footers in addition to the great oak.

Quercus Virginiana Live oak



Girth 22'1.5"



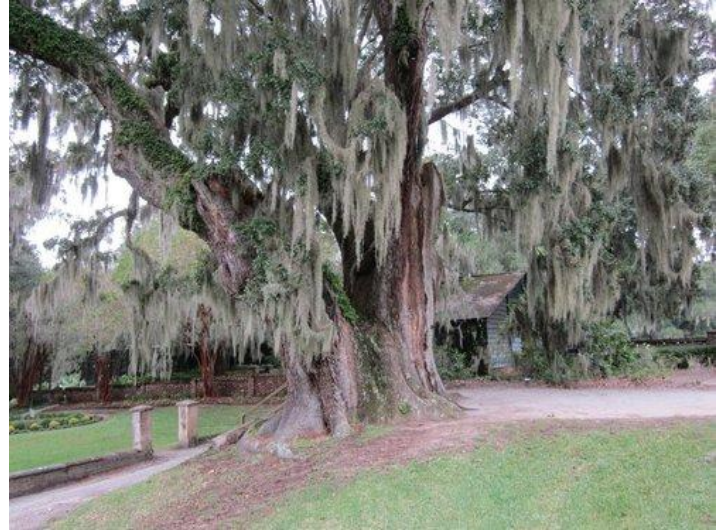
Girth 32'10"



Girth 22'11"



Girth 20'10"



Girth 31'8.5" double



Girth same 31'8.5" includes 21'7" trunk



Girth 25'6"

**Re: Middleton Place, SC**

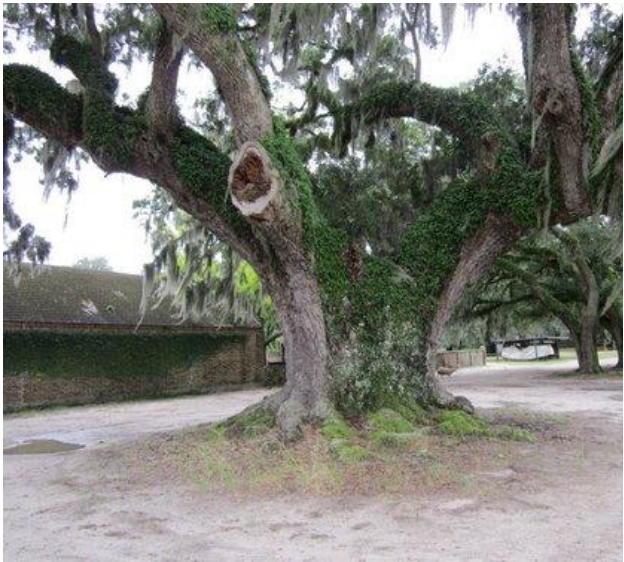
by **bbeduhn** » Tue Oct 30, 2012 10:54 am



Girth 27'5" 105' spread



160+ year old crape myrtle



Girth same 27'5"

More to come.

<https://www.middletonplace.org/>



live oak



live oak



view of the Ashley River



shortleaf 9'3" cbh 120.4'



redcedar 9'6" cbh 61.4'



redcedar 97" cbh 51.8' 65.25' spread

American holly *Ilex opaca*  
68.8'  
72.6'

Shortleaf pine *Pinus echinata*  
120.4'  
102.2'  
106.6'

Baldcypress *Taxodium distichum*  
101.1'  
107.6'  
113.8'

Pondcypress *Taxodium ascendens*  
93.9'  
101.6'

Pignut hickory *Carya glabra*  
95.6'

Tuliptree *Liriodendron tulipifera*  
106.6'  
105.5'  
115.5'

Sweetgum *Liquidambar styraciflua*  
106.8'

White oak *Quercus alba*  
86.5'

Am. Beech *Fagus grandifolia*  
78.1'

So. Magnolia *Magnolia grandiflora*  
78.5'  
72.2'  
75.5'  
72.4'

Live oak *Quercus virginiana*  
76.5'  
NLT 79.5'

Swamp chestnut oak *Quercus Michauxii*  
72.9'

Spruce pine *Pinus glabra*  
68.5'  
73.0'  
73.3'  
85.5'

Loblolly pine *Pinus taeda*  
79.1'  
88.8'  
94.2'

Not a true Rucker as I didn't get everywhere:  
RI 10= 99.94'  
RI 5= 111.62'

Brian Beduhn



**Re: Asheville, NC Trees**

by **bbeduhn** » Tue Oct 30, 2012 11:59 am

Suwara Grove, Asheville Country Club and across street

*Chamaecyparis pisifera* Suwara false-cypress  
Private home  
93.0'  
88.4'  
many more shorter suwaras

Country Club  
91.5'  
89.7'

*Tsuga Caroliniana* Carolina hemlock  
private home  
88.6'

*Platanus occidentalis* Am. sycamore  
Country Club  
139.6' open grown. Has been measured multiple times. It was 134.3' in 2009, when Will Blozan measured it.

Brian Beduhn

118.7'  
118.3'

shortleaf pin. ech.  
91.9'  
93.8'  
108.7'  
119.6'

sycamore plat. occ.  
105.4'  
103.7'  
106.2'

pond cypress tax. asc.  
62.5'

oriental spruce pic. or.  
79.5'

norway spruce pic. abies  
90.3'  
88.2'

white pine pinus strob.  
103.7'

hemlock tsuga can.  
91.8'

doug-fir pseudo. menz.  
69.3'

**Riverview Cemetery, Asheville, NC**

by **bbeduhn** » Tue Oct 30, 2012 12:13 pm

This is the final resting place of literary figures Thomas Wolfe and O. Henry (William Sidney Porter), and George Masa, whose photos helped establish GSMNP.

white oak quercus alba  
98.4' 14'4" cbh  
89.6'

tuliptree lirio. tulip.  
134.2' in forest next to cemetery  
121.0'

so. red oak quercus falc.  
85.6'  
95.8'  
94.7'

## [Re: Maple Height Record - Humboldt Honey - 157.8 ft.](#)

■ by **M.W.Taylor** » Tue Oct 30, 2012 1:40 pm

Mario, When I first attended Humboldt State in 1984, there was a very popular poster being sold by local retailers titled.. "Are you a Humboldt Honey"...featuring a Birkenstock clad woman with leggings & bandana. She had braided armpit hairs. Arrows pointed to the various features that might identify you as a "Humboldt Honey". I think that style died out a few decades ago but every now and then I see what appears to be a genuine "Humboldt Honey" in the Arcata area.

On that tall *Acer macrophyllum* I expect Zane to find another that stands at least 190'. Easier said than done though & that is why I am putting the challenge on Zane. Just going by past experience. So I expect 30'+ increments in height records from Zane..nothing less.

Looks like you got to the tree just in time before all

the leaves fell. It would be hard to hit that top twig (using a forestry laser) without a leaf.

Michael Taylor

## [Re: Big Pines Hwy 89 \(Lake Tahoe\)](#)

■ by **Mark Collins** » Wed Oct 31, 2012 2:24 pm

Larry,

Putting together a list of Tahoe's great trees would be extra incentive to move into the area, but for now, my little notebook will have to do. I wish I could get out there more often.

Michael, I sent an email with the GPS coordinates.

Here's a cool looking fungus that was growing inside the Red Fir. It's base was beginning to hollow out, and the fungus was in the cave.



## [Networking, Outreach and Partnerships](#)

by **edfrank** » Tue Oct 30, 2012 7:28 pm

For those of you who are involved with administrating a Facebook Page, Facebook has now decided to only show your pages to a small fraction of the people who "like" your page. We have close to 2000 fans of our Facebook page, but the most viewed post in the last few weeks has had only 383 views, most have less than 200. You can now opt to pay for them actually showing your page to more of your fans. I have heard that this does not even get them to show your page to all of your fans, unlike previously when the posts would be sent out to everyone who "liked" your page as part of the free service. This is clearly about trying to suck money out of the service and is making it all but useless to many small groups like ourselves. This may be the stupid decision that end Facebook's reign as an internet powerhouse, much like similar stupid decisions led to the downfall of Netscape, Worldcom, and MySpace.

There is a work around if people add your site to an interest list, they can, by clicking on the list, from their newsfeed page see all of the posts made to all of the groups on the list. I have created a TREES INTEREST LIST that includes our Facebook page and others I found worthwhile and have made available for subscription by fans of our site. I sent out the following message to other sites on the list proposing we share this interest list from each of our sites, or if they create one of their own, to include the NTS page on their list. I am still in the process of sending out messages to all of the groups on the list as I can only send out so many at a time before Facebook tells me I am abusing their messaging system.

Edward Frank

Networking, Outreach and Partnerships

My name is Edward Frank and I am the page administrator for the Native Tree Society Facebook

page [http://www.facebook.com/pages/Native-Tr ...768?ref=hl](http://www.facebook.com/pages/Native-Tr...768?ref=hl), our website <http://www.nativetreesociety.org>, and out BBS at <http://www.ents-bbs.org>. As most of Facebook Page Administrators are already aware, Facebook has changed how it shares posts made to your page with your membership. Now liking a page will not assure that these members will see the content you post, and what other members post to the page in their newsfeed. This problem for the moment can be resolved if those people who have liked your page create an interest list on their home newsfeed page that includes your page. Alternatively the page administrator can create an interest list that includes their page and post it so that people can subscribe to it.

This change is Facebook has created a big hole in our fan base and in our ability to interact with those who like our pages. I have created an interest list called "Trees." It already includes your Facebook page. I would like to ask that those who administrate various tree related or post frequently about trees work together to assure our posts are seen by those who like our pages. I propose that either you post a link to the above Trees Interest list to your Facebook page in the About Page or a Note, or that you create a Interest List of your own and include a link to our Facebook page in your list.

This is what I have posted in our About page (under the Mission Heading):

Be sure to get all of our posts by creating an interest list on your newsfeed page that includes this page, or subscribe to our Trees Interest List <http://www.facebook.com/lists/10151039626131958> of pages that are about trees or frequently post about trees.

The Native Tree Society (NTS) is a non-profit scientific organization dedicated to the study of trees and forests. We began as a regional tree interest group in eastern United States, but since that time our group has grown to encompass other areas of North America and has attracted scattered members elsewhere around the world. Our interests range from art and history, to dendrochronology and canopy mapping, to arboriculture and forestry, to photography and tree climbing. All of these are

subjects of discussion and featured on our BBS and website. The primary contribution of the NTS to the community of tree organizations is our emphasis on promoting accurate tree measurements, on developing new and better measurement techniques, and documenting examples of old or unusual forests.

We respect the diversity of interests represented by other tree and forest groups and feel that a working together would be of benefit to each of our groups.

Initially we can share links between our websites, Facebook pages, and broaden our internet presences.

I propose the following:

- 1) Facebook: As outlined above I want to encourage you to either share our Trees Interest List on your Facebook page or create an interest list of your own which includes our page as a member of the list.
- 2) Website: I would further propose, that if interested we could exchange links on our respective websites, if you have one. I will place a link on our website <http://www.nativetreesociety.org> and on our BBS at <http://www.ents-bbs.org> linking to your group's website or Facebook page. I would ask in return that an exchange link to our website and BBS be posted on your webpage. This invitation is also open to those individuals that have a personal website devoted to trees or forests, even if they are not part of a formal group. This link would optionally include, at their behest, the group's logo and a short paragraph summarizing the area of interest and goals of that partner group.
  - a. Contact Information: If you need to contact me about any details I can be reached at: Edward Frank; 8718 Route 322, Reynoldsville, PA, USA, 15851; (home) \*\*\*\*\* (cell) \*\*\*\*\*; [edfrank@nativetreesociety.org](mailto:edfrank@nativetreesociety.org) or [ed\\_frank@hotmail.com](mailto:ed_frank@hotmail.com)
- 3) Joining NTS: I would encourage individuals interested in trees and forests to consider joining our BBS and participate in our ongoing discussions. People are also welcome to join the BBS as representatives of their organizations. Simply go to the BBS website <http://www.ents-bbs.org> and click

on the "Register" button at the bottom of the heading on the right side, and follow the instructions to create an account. There are instructions on how to use the BBS Board posted here:

[viewtopic.php?f=166&t=23](http://www.nativetreesociety.org/viewtopic.php?f=166&t=23) and instructions on how to subscribe to a daily digest of the posts made to the bulletin board posted here:

[viewtopic.php?f=166&t=943](http://www.nativetreesociety.org/viewtopic.php?f=166&t=943)

In addition to these initial internet linkages, if interested we can talk and determine ways in which we can work together to better promote our mutual goals and to consider potential joint projects. We can talk about how we can share our resources and expertise. The Native Tree Society membership that includes people ranging from interested amateurs, to artists, to some of the top forest experts in the world.

We certainly can share that interest and expertise with other organizations. We have formal "Tree Measuring Guidelines of the Eastern Native Tree Society" that can be downloaded from our BBS and website: [download/file.php?id=5066](http://www.nativetreesociety.org/download/file.php?id=5066), as well as a wide range of discussions on this and other subjects on both our website and BBS. We have a quarterly scientific journal entitled: "The Bulletin of the Eastern Native Society" available here: <http://www.nativetreesociety.org/bullet...lletin.htm>, and a monthly magazine called "eNTS: The Magazine of the Native Tree Society" available here: <http://www.nativetreesociety.org/magazine...gazine.htm> and a series of special publications available here: [viewforum.php?f=297](http://www.nativetreesociety.org/viewforum.php?f=297).

I encourage people to forward this note to other tree and forest groups that might be interested in participating in this networking effort. The Native Tree Society reserves the right to decline forming a partnership with any group, organization, business, or individual at our own discretion. Please contact me at the above email address if you have any questions or comments. Thank you.

Edward Forrest Frank, October 29, 2012

## [Videos - Falling trees in Hurricane Sandy](#)

by **edfrank** » Tue Oct 30, 2012 11:01 pm

HURRICANE SANDY - Live Footage Captures Trees Falling!



<http://www.youtube.com/watch?v=YwFkyHAXC0g> Latest live footage of Hurricane Sandy in the United States (as seen on the BBC news 30 Oct 2012). Watch as the storm blows down THREE trees, causing fire and car damage! Captured on a digital camera 29 October 2012. PLEASE SHARE - this is amazing!!

Hurricane Sandy Tree Falling



[http://www.youtube.com/watch?v=\\_Cy1PvvNEFo](http://www.youtube.com/watch?v=_Cy1PvvNEFo) Tree Falling in Front Yard - Hurricane Sandy, 2012 - Acton, MA



<http://www.youtube.com/watch?v=AQWbVSbnuWo> This is a short video of a tree that fell in our front yard due to Hurricane Sandy. Acton, MA. October 29, 2012

## [Re: Video - Falling trees in Hurricane Sandy](#)

by **jamesrobertsmith** » Wed Oct 31, 2012 1:35 pm

That was impressive. Scary stuff when they go. I always get nervous when I'm backpacking and a wind storm hits. Scariest one was in a Cohutta Wilderness backpacking trip. Two fronts collided. One second it would be sleeting, the next we'd get hit with rain and the temperatures would soar. The winds were hideous. During the night we could feel the ground thumping as root systems all around us were strained. There was nothing we could do but wait it out.

James Robert Smith

## [Re: Video - Falling trees in Hurricane Sandy](#)

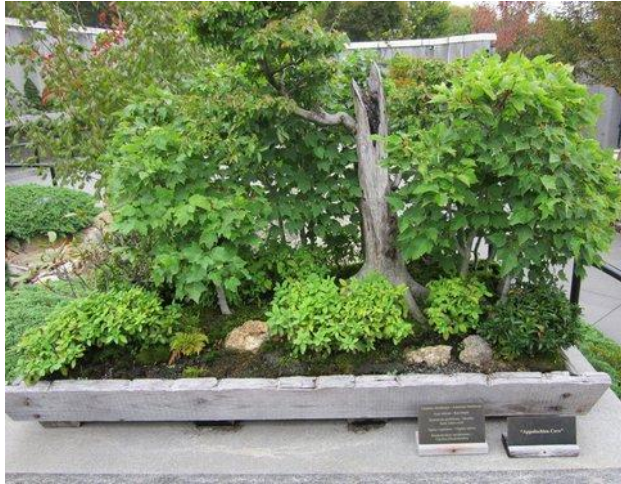
by **Rand** » Wed Oct 31, 2012 12:02 am

Wow. It's almost like they fall in slow motion or something.

Rand Brown

## WNC Arboretum Bonsai Pics

by **bbeduhn** » Wed Oct 31, 2012 11:27 am



Appalachian Cove



Baldcypress Forest



Chase Grove with Hinoki Cypress



European Beech



Graveyard Fields, Blue Ridge parkway



Roan Mountain on AT with Chinese Junipers



Mount Mitchell with White Spruce



Yoshimura Island with American Hornbeam

<http://www.ncarboretum.org/exhibits/outdoors-2/bonsai/>

Brian Beduhn

**Re: Vine ID help, Georgia**

by **eliahd24** » Wed Oct 31, 2012 8:26 pm

I'll try to add a picture with a leaf and some other shots of the bark, etc....

The leaf was extremely fuzzy. the bottom was noticeably paler and fuzzier than the top too.

the bark splits with age/size

no sign of flowers or fruit





## [Re: Vine ID help, Georgia](#)

by **Jess Riddle** » Wed Oct 31, 2012 11:38 pm

Eli, Looks like an Actinidia, probably *A. chinensis*, chinese gooseberry. The species is listed as rarely naturalizing in the southeast and is not listed from Georgia, so you may have a new state record.

Jess Riddle

*Actinidia chinensis* is a deciduous Climber growing to 7.5 m (24ft 7in). It is hardy to zone 7 and is not frost tender. It is in flower from May to June, and the seeds ripen from Oct to December. The flowers are dioecious (individual flowers are either male or female, but only one sex is to be...

## [Re: Vine ID help, Georgia](#)

by **eliahd24** » Thu Nov 01, 2012 2:32 pm

Hot dang that looks like it Jess! We've got us a regular 'ole kiwi vine here in Atlanta!

<http://www.pfaf.org/user/Plant.aspx?LatinName=Actinidia+chinensis>

Actinidia chinensis PFAF Plant Database

## External Links:

**Climate Change Could Cripple Southwestern U.S. Forests: Trees Face Rising Drought Stress and Mortality as Climate Warms**

<http://www.sciencedaily.com/releases/2012/09/120930142106.htm>

**In 'Music Of Trees,' A Symphony In The Key Of Cedar**

<http://www.npr.org/2012/10/01/162110681/in-music-of-trees-a-symphony-in-the-key-of-cedar>

**6 of America's Coolest Trees**, Sierra Daily, 08/07/2012

<http://sierraclub.typepad.com/explore/2012/08/6-of-americas-coolest-trees-.html>

**Is Root Grafting a Positive, Cooperative Behavior in Trees?** ScienceDaily (June 8, 2011)

<http://www.sciencedaily.com/releases/2011/06/110608141529.htm>

**AmeriDendro 2013: Second American Dendrochronology Conference**

13-17 May 2013 (Tucson, Arizona)

<http://www.treeringsociety.org/ameridendro2013/>

**The mathematics of leaf decay**

A mathematical model reveals commonality within

the diversity of leaf decay.

Jennifer Chu, MIT News Office

<http://web.mit.edu/newsoffice/2012/leaf-decay-1004.html>

**Madagascar palm trees at risk of extinction, study finds** 17 October 2012

<http://www.bbc.co.uk/news/world-africa-19985536>

**The vanishing groves** A chronicle of climates past and a portent of climates to come – the telling rings of the bristlecone pine Ross Andersen 16 October 2012

<http://www.aeonmagazine.com/nature-and-cosmos/ross-andersen-bristlecone-pines-anthropocene/>

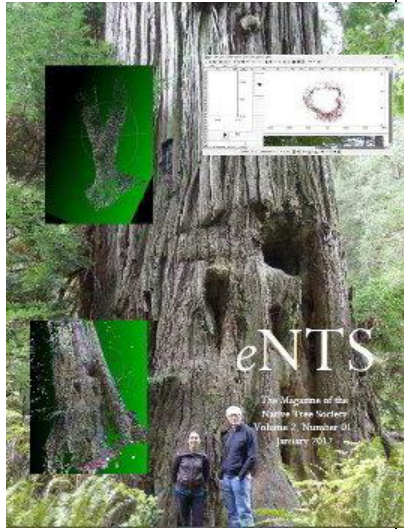
**Recognising indigenous “sacred areas” could double amount of protected land worldwide**

<http://blog.cifor.org/11200/recognising-indigenous-sacred-areas-could-double-the-amount-of-protected-land-worldwide/#.UIYfs668qSp>

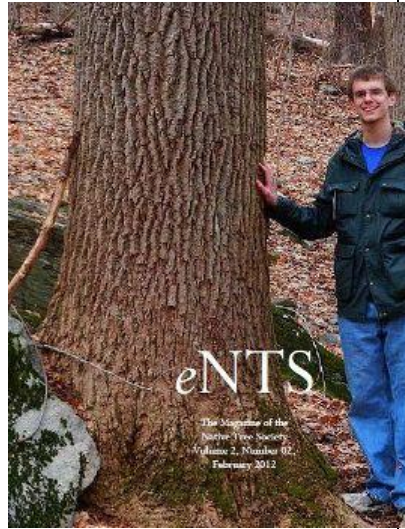
**Wandering in Japan’s ‘Suicide Forest’** October 25, 2012, 5:00 am, by James Estrin

<http://lens.blogs.nytimes.com/2012/10/25/wandering-in-japans-suicide-forest/>

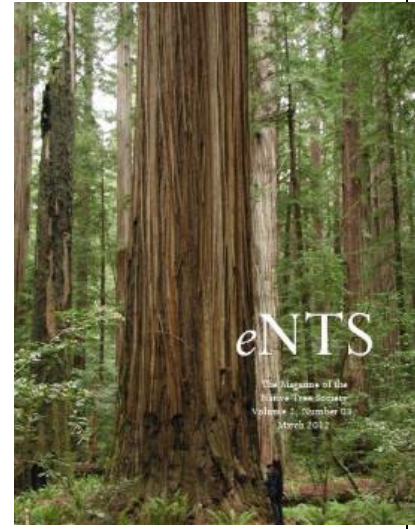
## Back Issues of eNTS: The Magazine of the Native Tree Society



[eNTS Magazine January 2012](#) 21 MB  
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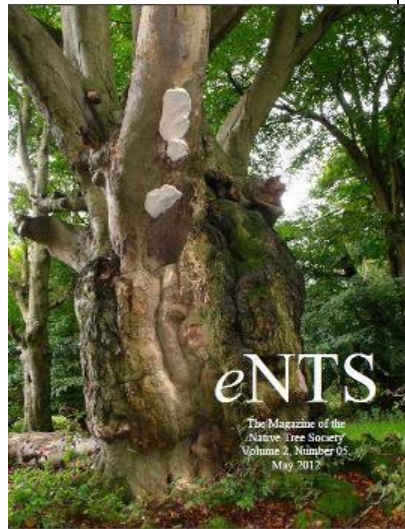
[eNTS Magazine February 2012](#) 20.5 MB  
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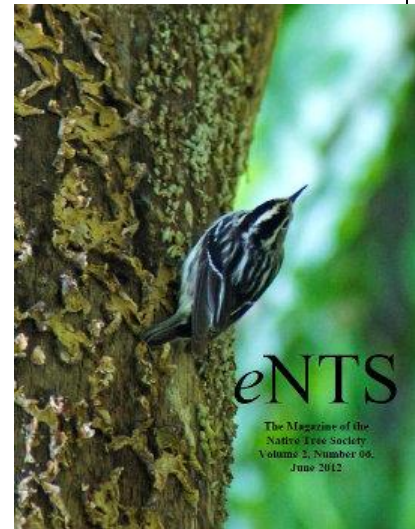
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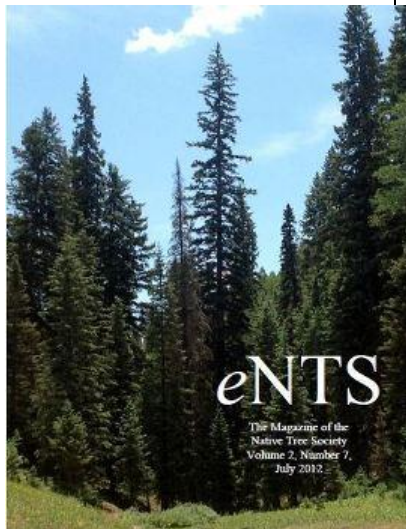
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[eNTS Magazine May 2012](#) 16.6 MB  
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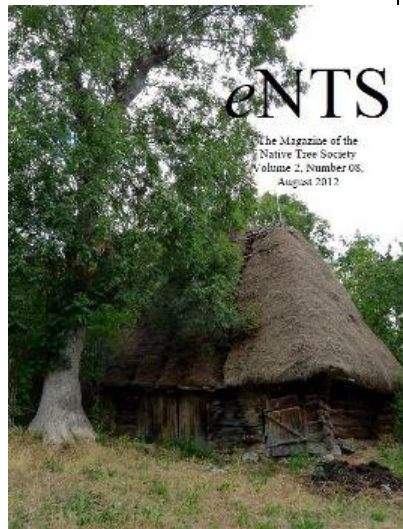


[eNTS Magazine June 2012](#) 8.7 MB



[eNTS Magazine July 2012](#) 10 MB

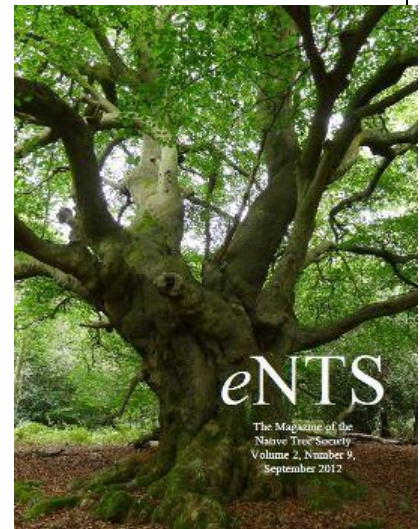
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[eNTS Magazine August 2012](#) 13.3

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[eNTS Magazine September 2012](#) 13

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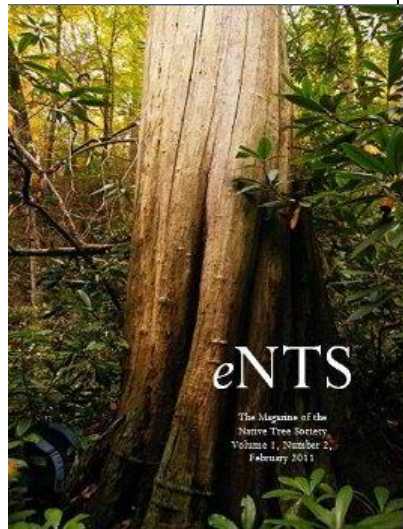
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2011



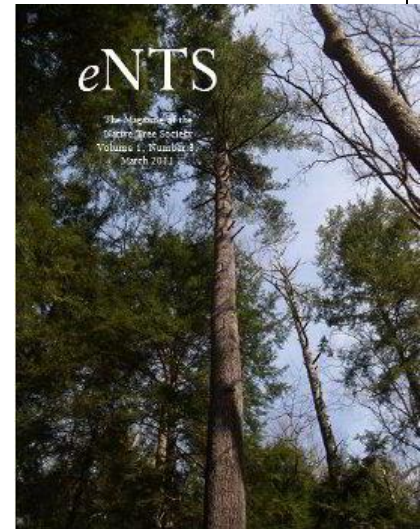
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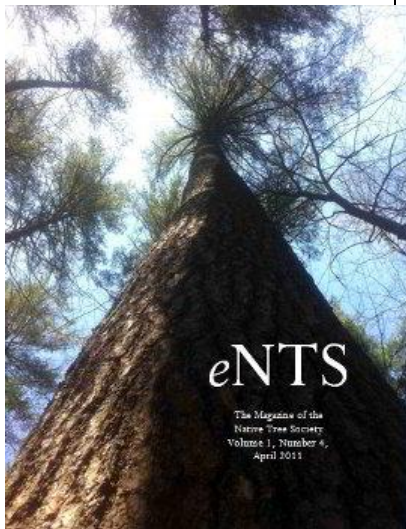


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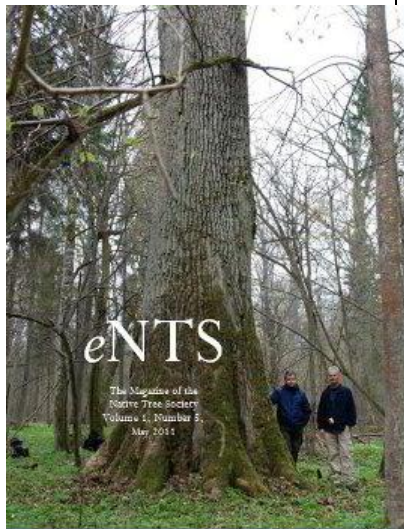
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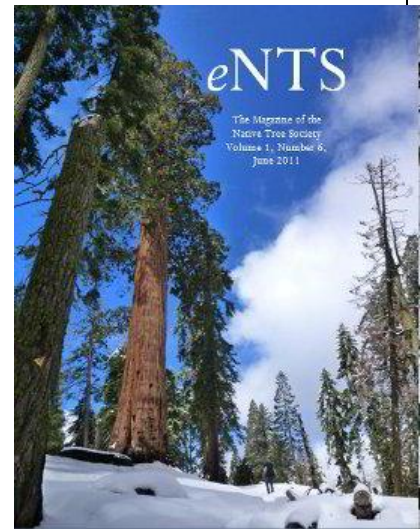
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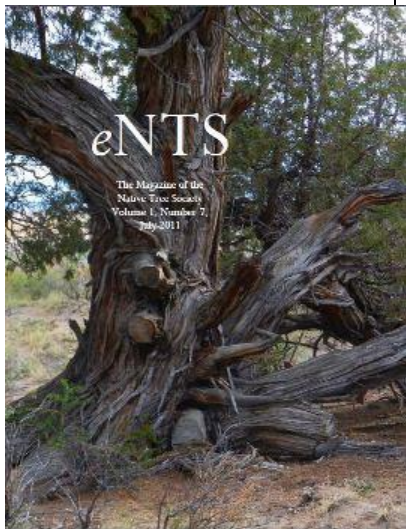
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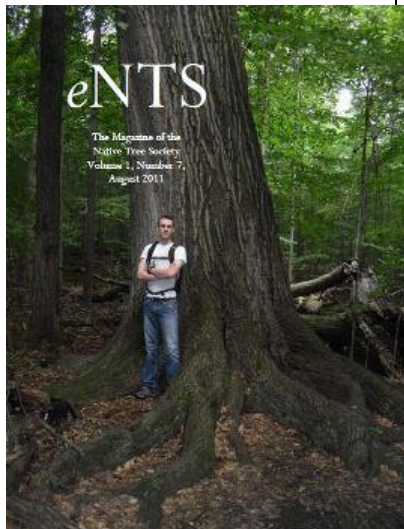
[eNTS Magazine May 2011](#) 9.5 MB



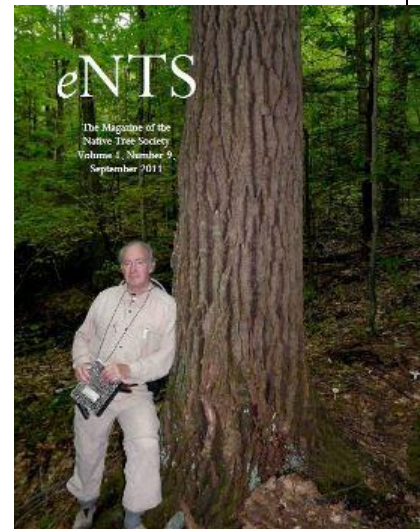
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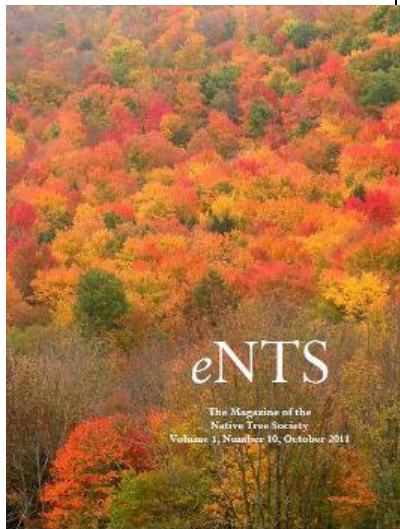
[eNTS Magazine July 2011.pdf](#) 28 MB  
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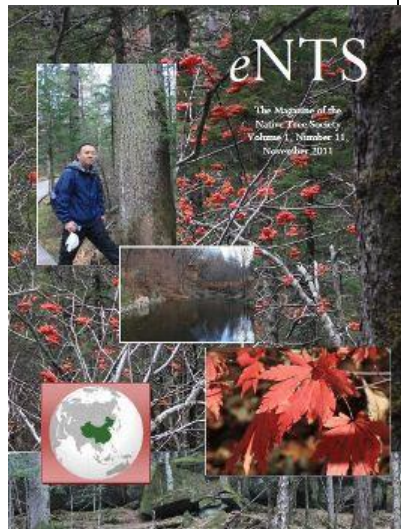
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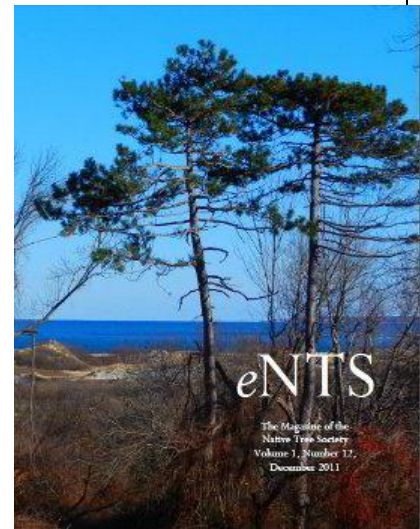
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## About: eNTS: The Magazine of the Native Tree Society

This magazine is published monthly and contains material that is compiled from posts made to the NTS BBS. <http://www.ents-bbs.org> It features notable trip reports, site descriptions and essays posted to the BBS by NTS members. The purpose of the magazine is to have an easily readable and distributable magazine of posts available for download for those interested in the Native Tree Society and in the work that is being conducted by its members.

This magazine serves as a companion to the more formal science-oriented *Bulletin of the Eastern Native Tree Society* and will help the group reach potential new members. To submit materials for inclusion in the next issue, post to the BBS. Members are welcome to suggest specific articles that you might want to see included in future issues of the magazine, or point out materials that were left from a particular month's compilation that should have been included. Older articles can always be added as necessary to the magazine. The magazine will focus on the first post on a subject and provide a link to the discussion on the website. Where warranted later posts in a thread may also be selected for inclusion.

Edward Frank – Editor-in-Chief