



CFA NEWS

Fall 2020

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A PUBLICATION OF THE CATSKILL FOREST ASSOCIATION, INC.



CFA NEWS

Fall 2020

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As a member you can see upcoming events and learn more about programs at;

www.catskillforest.org.

Refer a friend or neighbor to the Catskill Forest Association and get a free gift from us.

CFA Sponsors a scholarship with the ESF College Foundation.

Below are the winning recipients!

Gabriel Cavallaro- Ulster Co.
 Zaia Michelle Ivan- Greene Co.
 Dylan Pettit- Delaware Co.
 John Unverzagt- Ulster Co.

Congratulations all!!

From the
 President's Desk
 Fall 2020

By: Mike Porter

I can't believe it is nearly Fall as I am writing this piece. It seems like the time is flying by. It is probably not a bad thing that time is going by rapidly as it could be a real drag dealing with the Coronavirus pandemic. When this whole thing began in March, I decided to compose a letter to all members extolling the virtues of owning your own land. It is one thing we all have

in common; we are members of CFA because we own some land, it doesn't matter how much, we own land. Writing the letters has now reached a time when I am preparing, or at least thinking about my 19th letter during the pandemic. Yes, I have missed a couple weeks but who's counting the total weeks. I have totally enjoyed writing those letters and will continue to do so as long as is needed. I just need new inspirations. Any ideas?

I have written about things that I feel are time appropriate or currently on my mind. I have used topics that I am familiar with or that I have learned a great deal about over the last couple years. I taught school for 33 years and many of those years I taught a self-designed Environmental Science class. Since there were no Regents or special state exams to prepare for, I used the local area as my subject base and taught everything from basic ecology and ecosystems to tree ID and forest mensuration. I introduced kids to making Maple Syrup and have helped a few major producers get their start. We learned about the waters of the Catskills and the hills they flow through. I loved teaching that

class as much as I have loved writing these letters. I guess a 16-year hiatus from teaching is finally catching up with me.

One of the biggest things I have enjoyed about these letters is the response from Members. When I participate in the "From the Forest" radio show, I am very happy, but you don't get much feedback on the discussion of the evening. When I compose a letter and send it out, there is almost immediate feedback from one or several members, often deserving a follow up message or idea for the future. The CFA staff are getting feedback from members in their daily work schedule. I even have been on a couple program days where when it came up that I was the author, the response was very positive and interesting.

As it looks like this pandemic will not end soon, I am still coming up with rough ideas for letters. As I think about something in my daily life and I see it as possibly instructional or entertaining, I make a note and prepare mentally for the writing. I guess I must be patient and let things flow as I compose them. Like I am now.

I write this out of a love for CFA. I owe my Board

2020 Events

Sept. 26th 10am - 12pm
Cider Making Demonstration

Sept. 26th 10am - 12pm
Mushroom Woods Walk

Oct. 10th 10am - 1pm
Annual Membership Meeting

Oct. 24th 10am - 1pm
Mushroom Log Inoculation

Dec. 5th 10am - 12pm
Deer Processing Workshop

Dec. 5th 1pm - 3pm
Wreath Making Workshop

Welcome, New Members!

Adam Jakubowski	Doug Cagodan
Kate Bradley	Gerald McDonald
Francis Coughlin	Timothy Furstnau
Zane Lawyer	Scott Wolfson
Joseph Galvin-Lopez	Walter Ditman
Leah Loscutoff	Gary Marder
Kurt Rummel	Pete Shepherd
Charo Nespral	Jeremy Coles
Lorraine Scorsone	Momoe Braveman
Jessica Corey	Robert Warren
Evry Mann	James Montalbano
Cornelia Friedman	Louis Falcinelli
Alison Rosa	Katie Peterson
Chris Durso	Larry Gagler
Tony Moore	Bejan Shirvani
Jessica Moore	Jariya Wanapun
Timothy Wilson	Joe Sciano
Neil Hoffman	Josephine Gaglio
Belinda Watts	Sharon Horvath
Randi Timan	Marx Rivera
Eric Ansanelli	Hillary Kolos
Robert Schultz	Isaac Prada
Kelley Cribben	Christopher Aigner
William Abranowicz	Eleanor Diploma
Russell Freeman	Brian Kuhnau
Bob Black	Ferndiff Forest
Coralyn Loomis	Joy Tan
Toni Ann DeLuca	Kelly Benson
Seth Skolnick	Reed Clark
Berthia Waterman	Nacy Costa
Megan Fromer	Harold Malone
Cristina Fracisco-	Karen Weissman
McGuire	Peiwu Tusng
Moreno DiMarco	Jim Nickel
Keight Bergmann	Utku Kurtmer
Luke Crisell	Michele Korolow
Gina Molenit	Matthew Brninski
Joanna Hartell	Jared Rosmarin
Jackie Wolff	Peter Twyman
Kestutis Gasiunas	Ian Frye
Dawn Peters	Dorothy Schlafrig
Richard Powell	
Adam Snyder	
Vanessa Van	
Bellingham	
Pedro Garcia	

membership to, long-time member and Board member/President, Bob Greenhall. One day I offered to mow his fields with his brush hog. After I was done, he asked me why I was doing such a menial task when I had so much more to offer. My answer was that I simply enjoyed doing anything outside. The satisfaction of completing a field or filling the woodshed make all the “hard work” very satisfying. That conversation came with a discussion of CFA and the work of the organization’s value. He, sort of, tried to get me to apply for a job opening that I was not really qualified for and I told him I was not ready to work again. In a year or two there were openings on the Board and both Becky, and I agreed to serve. Becky has since left the Board, but I was elected President some time ago. I cannot even remember how many years ago it was. Not only do I love CFA, but I feel like I am doing a good job of leading the Board through its travels. I have said I would continue until someone else feels they can step in and continue the great things happening at CFA.

I now go out on Programs with Ryan or John to help out. I have been with Ryan to inject



an Ash tree to protect it from Emerald Ash Borer and been a ground man for apple tree pruning jobs. With John, I have been his “tail man” on the sawmill at various member’s properties. As I have mentioned, maybe too much, I have a mill myself, I really watch what John is doing and how he is guiding members to make the best decisions regarding their logs.

After encouraging other Board members and general members to help where they can, maybe some will come away with the same level of interest in what is going on in the field. There is no better way to promote the Programs of CFA than by working on them and seeing how they benefit the forest and members. The excitement of watching a log become boards that have special characteristics that will make a landowner happy is infectious. I even wrote a letter about what is in your tree as a follow-up to my experiences both with John and with my own mill.

If you look back at the

last letter, you will see a photo of an Aspen root with shoots coming out of it. That specimen came from ground Becky and I were “weeding” to make space for “social distancing” at our fire pit. When I saw the piece, it gave me pause to think about what I knew about Aspen already and how it would help others learn a few lessons about an interesting tree. I took my basic knowledge of the tree and did some research to supplement what I already knew so I could convey the “uniqueness” of this tree to the membership. It is these kinds of letters that I have used to expand my knowledge as well as impart information to CFA members.

If ever I have written something that is stream of consciousness, this is it. Out of a need to produce something for the next newsletter and allow my brain to continue organizing its thoughts toward my letters, there is no better way to focus than openly think and write about it. I hope you have gotten something from this President’s Desk as I look forward to writing many more in the next years.

It’s All Good in the Woods,
Mike Porter, President
CFA Board of Directors



The Annual Giving Tree Fundraising Champaign Update

In 2018, the Catskill Forest Association launched an “Annual Giving Tree” fundraising campaign. The purpose of the campaign is to raise funds so that CFA can continue to offer the Forestry Education Programs and Services that we currently offer; including our events, demonstrations and workshops, which we offer at a reduced cost or free of charge, for our members and friends.

Through the generosity of our members and friends during this campaign, CFA has met approximately 34% of the modest, annual goal that we have set. However, due to the current COVID-19 restrictions that are in place, we have had to cancel many of our 2020 educational events this year, which has resulted in a reduction of income for the organization.

We are, once again, asking for your support as we seek to raise funds to help us continue to serve our members who live among the six counties that comprise the beautiful Catskill Mountain Region. We would love for you to be a part of our fundraising campaign. To make a tax-deductible donation to CFA, please: visit our website catskillforest.org, hover over the Membership tab, then select Make A Donation; or simply drop a check or money order, payable to the Catskill Forest Association, Inc., in the mail.

Thank you, in advance, for your continued support of our wonderful organization. We sincerely appreciate every donation that has been made to our Annual Giving Tree campaign, and we look forward to hearing from you. After all - we are here for you - because of YOU!

May the [Forest] be with you!
CFA Board of Directors and Staff

Game of Logging – Level 1 June 20, 2020

By: Gary Kusen, CFA Member



I just wanted to drop CFA a note on what a wonderful opportunity the Game of Logging brought for me and the other dozen folks that took the course. Bill Lindloff is an amazing instructor and logger. Our class consisted of men and women students that ranged in age from twenty something to seventy something. We all came from different walks of life with as many different expectations from the course. Bill worked with each of us so that no one felt left out.

We started with introductions and then we learned the basics of chain saw safety, chain sharpening and the use of safety equipment.

After basic training and a brief lunch break, we were off to

our woods. Yes, I was the CFA host for this event, and I encourage other CFA Members to consider being a host as well. Not only did I learn a whole new way of felling a tree, I also got the benefit of twelve others felling trees for me.

We chose a selection of trees ranging in diameter from 12" to 18", most of which were located within the footprint of a future home for our daughter, her husband and our grandchildren. I must admit, I felt a little like Tom Sawyer when he got his mates to paint the fence for him.

All in all, the experience was outstanding. Thank you Bill from Bill Lindloff's ProCUTS and CFA for putting this opportunity together for us.





INDEX TO ARTICLES ON FOREST ECOLOGY AND HISTORY

By: Michael Kudish

In the summer 2020 issue of the CFA News, we included an index to Mike Kudish's articles on forest ecology and the reasons for tree distribution. Because of an electronic malfunction with Mike's computer (it doesn't know how to save properly all the time), an earlier incomplete draft was printed in the summer issue instead of the complete index. The incomplete draft lacked the titles of the CFA News & Kaatskill Life articles, so that CFA members would have little idea what the articles were about. This fall issue contains the full index. We apologize for the malfunction.

If an article spans two topics, it is indexed under both topic headings. For example, the article on the forest product industries on Hunter Mountain (KL 29,2: summer 2014, 60-67) is indexed under both "Industries" and "Forest History of Individual Mountains".
ABBREVIATIONS: CFA = CFA News. KL = Kaatskill Life. The first two numbers are the volume and issue numbers, followed by the season and year, and the page numbers.

AGES, ESTIMATING TREE – CFA 30,3: summer 2012,
8-10. Estimating Tree Ages.

AGRICULTURE AND ABANDONED PASTURES –

KL 24,2: summer 2009, 68-71. Not All Abandoned Pastures Become Forests.

KL 33,2: summer 2018, 70-75. Farms Way Up There? High-elevation Pastures Along the Belleayre-Eagle Range.

BURNS – see fires

CLIMATE CHANGE AND FORESTS –

CFA 37,1: spring 2019, 16-18. Refuting a Catskills Myth: Northern Hardwoods will be Replaced by Oak-Hickory.

CFA 37,2: summer 2019, 15-18. Refuting a Catskills Myth:

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Spruce-Fir Forests will Disappear.

KL 27,4: winter 2012, 20-27. Catskills Climate Change: 13700 Years Ago.

FARMS – see agriculture

FERNS (see also Ground Cover Plants and Seeps & Springs) –

KL 26,2: summer 2011, 74-80. Entering the World of Fern Glades.

KL 30,2: summer 2015, 74-79. A Tale of Two Confounding Ferns.

FIRES, NATIVE AMERICANS, AND OAK-HICKORY-CHESTNUT FORESTS –

CFA 26,3&4: summer & fall 2008, 11. The Oaks of Cold Spring Hollow.

CFA 27,4: fall 2009, 4-7. Native Americans' Effect on the Forests of the Catskills Mountains.

CFA 32,3&4: summer & fall 2014, 5-9. Shavertown Oaks.

CFA 33,4: fall 2015, 12. Betty's Bog: The Burning and the Boring.

CFA 34,2: spring 2016, 5-7. American Chestnut Follows People.

CFA 34,3: summer 2016, 5-7. Mountain Laurel Thickets: An Alternative to Radiocarbon Dating?

CFA 35,3: summer 2017, 5-7. Esopus North Oaks.

CFA 37,1: spring 2019, 16-18. Refuting a Catskills Myth: Northern Hardwoods will be Replaced by Oak-Hickory.

KL 27,2: summer 2012, 52-63. Going Nuts from Growing Nuts in the East Branch Delaware Valley.

KL 29,4: winter 2014, 52-58. Not Going Nuts in the West Branch Delaware Valley.

KL 34,4: winter 2019, 66-71. Predicting a Native American Village – and Finding It!

FIRST AND OLD GROWTH FORESTS –

KL 23,4: winter 2008, 14-19. First Growth Forests of the Catskills.

KL 28,2: summer 2013, 92-100. Three Major Just-Discovered First Growth Tracts in Delaware County.

FOREST HISTORY OF INDIVIDUAL MOUNTAINS –

CFA 26,2: spring 2008, 11. Shin Creek Mtn.

CFA 29,1: winter 2011, 10-12. Firless Summit of Graham Mountain.

CFA 33,3: summer 2015, 7-10. The Forest Industries of Pakatakan Mountain: a Historic Headache.

KL 29,2: summer 2014, 60-67. Between Edwards and Fenwick: A Slice of First Growth (on Hunter Mountain).

KL 30,4 & 31,2: winter 2015, 24-28 & summer 2016, 102-108. Slide Mountain's Forest History.

KL 31,4: winter 2016, 48-55. Plateau Mountain – The Peak that has Everything.

KL 33,4: winter 2018, 34-45. Early Industries and Forest History of Belleayre Mountain.

KL 34,2: summer 2019, 26-35. West Kill Mountain – Greene County's Largest First Growth Tract.

FORESTS, POST-GLACIAL, FOSSIL LAKES, AND BOGS –

CFA 27,1: winter 2009, 10. Bogs with Lost Hemlocks.

CFA 29,1: winter 2011, 10-12. Firless Summit of Graham Mountain.

CFA 30,4 & 31,1: fall 2012 & winter 2013, 12-14. How the Catskills Obtained a Fir Coat.

CFA 31,2: spring 2013, 12-14. How the Catskills got Spruce Up.

CFA 33,4: fall 2015, 112. Betty's Bog: The Burning and the Boring.

KL 24,4: winter 2009, 68-73. Bugged Down in Bogs: Fossil Lakes of the Catskills.

KL 27,4: winter 2012, 20-27. Catskills Climate Change: 13700 Years go.

KL 32,2: summer 2017, 50-55. Predicting a Spruce Grove – and Finding It! (on Big Indian Mountain).

GROUND COVER PLANTS (see also Ferns and Seeps & Springs) –

CFA 33,2: spring 2015, 9-10. Can Ground Cover Plants Teach Us Forest History?

KL 25,2: summer 2020, 66-71. Boreal Ground Cover Plants.

HARDWOOD KRUMMHOLZ (SCRUB FORESTS) –

CFA 29, 3&4: summer & fall 2011, 8-9. Continued in CFA 30, 1&2: winter & spring 2012, 8-10. Hardwood Krummholz of the Western Catskills.

INDUSTRIES – SAWMILLS, TANNERIES AND OTHER HISTORIC FOREST PRODUCT INDUSTRIES (see also under Forest History of Individual Mountains)

CFA 27,2: spring 2019, 8-9. Forest Products on the Ulster & Delaware Railroad.

CFA 32,1: winter 2014, 11-13. Large Lumber Companies in the Catskills?

CFA 33,3: summer 2015, 7-10. The Forest Industries of Pakatakan Mountain: A Historic Headache.

KL 25,4: winter 2010, 56-60. Exploring Tote Roads.

KL 26,4: winter 2011, 66-71. Barking Up the Mountains: Mapping Tannery Roads.

KL 28,4: winter 2013, 10-18. The Woodland Valley Forest: An Environmental Disaster with a Happy Ending.

KL 29,2: summer 2014, 60-67. Between Edwards and Fenwick: A Slice of First Growth (on Hunter Mountain).

SEEPS AND SPRINGS – (see also Ground Cover Plants and Ferns) – CFA 28, 3&4: summer & fall 2010, 11-12. My Acre Was a Seep.

SHADE TOLERANCE SCALE – CFA 28,2: spring 2010, 11-12. A Shade Tolerance Scale for the Catskills.

STUMPS, DETERMINING THE AGE OF – CFA 32,2: spring 2014, 8-9. Stumped by Stumps?

SUBCLIMAX FORESTS – CFA 34,1: winter 2016, 6-9. The Subclimax Forest: An Exercise in Moderation.

A Members Award Winning Tree!

By: Dorothy Monforte

A few months back, one of our members had their forester walking their property updating their 480A plan. The forester, Chris Prentis, on his walk about the property, about 700 acres in Huguenot NY, happened to look at the ground at just the right moment. He saw the burs (seed pods/nuts) that American Chestnuts make. It had fallen to the forest floor. Then, he looked up and saw the largest American Chestnut he'd ever seen, 16" in diameter.

He was so awe-struck, he rushed back to the members house and got them to take a look. He suggested they get in contact with the American Chestnut Foundation. They asked for, and the members sent, a few clippings from the tree which they used to determine that it was a real American Chestnut! They won for having the largest American chestnut tree found in New York in 2019!

Their story will be the fall Newsletter for the American Chestnut Foundation. Keep your eyes out for it! Below is an article that shows us some hope for the future of the American Chestnut. Enjoy!

Anyone finding a tree or interested in helping with this American chestnut restoration program feel free to contact Allen Nichols, President, NY-TACF at fajknichols.75@gmail.com

A New Hope for the American Chestnut

March 18, 2020

By: Tim Russell

Forest researchers in New York may have found a way to restore the once-dominant American chestnut that doesn't involve non-native chestnut genes. You can help.

Apple, Persimmon, Jujube, Pawpaw, Pear, Sawtooth oak.

In the never-ending pursuit of the ultimate hunting property, mast production is common to the conversation. Spend just a little time around die-hard QDMers and chestnuts are likely to enter the discussion. In days past, the American chestnut was among the most common trees on the landscape. From Maine to Mississippi, chestnut trees spanned the Appalachian Mountains and beyond,

offering to wildlife an abundance of nuts with more digestible protein than acorns or beech nuts. Some estimate that American Chestnut comprised a quarter of the standing timber in the eastern United States prior to its downfall. In the wake of the infamous chestnut blight, caused by the invasive *Cryphonectria parasitica* fungus, naturally occurring American chestnut trees have become increasingly rare within their historic range.

Today, hunters seeking to offer local whitetails this highly preferred food source have options including Chinese chestnut trees and hybrids which include genes from both the Chinese and American chestnut. As many deer managers would tell you, establishing these on your hunting grounds can make whitetails feel right at home. However, concern over the loss of the native American chestnut and its unique characteristics has been the cause for research into restoring the species.

“The real issue is regaining tree height.”

Those words come from Dr. William Powell of the State University of New York’s College of Environmental Science and Forestry (SUNY-ESF) in Syracuse, New York, who has invested decades into restoration of the species.



QDMA’s Matt Ross discovered this surviving American chestnut tree on his QDM Cooperative in New York while surveying deer habitat with QDMA members Bill Badgley (left) and Pat Jarosz. The presence of “mother trees” like this one will aid in local restoration efforts when blight-resistant transgenic chestnuts are established starting this year.

“I have nothing against hybrid chestnuts, which can be a good source of hard mast,” said Dr. Powell. “However, these won’t grow up into the canopy of a forest, so they won’t become common in our forests as American chestnuts once were.”

After decades of research and careful genetic testing, a new hope is on the horizon.

Dr. Powell, along with Dr. Charles Maynard, who is now retired from SUNY-ESF, have created an American chestnut tree that will resist the fatal blight. This is not a hybrid tree – it is not a cross between different species. Rather, true American chestnut trees have been genetically altered to help them defend against the fungal parasite. All of their genes are American chestnut genes except one, which has been borrowed from wheat. By including this gene, Dr. Powell and Dr. Maynard have created a transgenic chestnut which produces a special enzyme called oxalate oxidase. This enzyme does not harm the fungus but breaks down the damaging oxalic acid produced by the fungus so it cannot harm the tree’s cambium.

Time to start the restoration? Not so fast.

Before debuting their transgenic trees, the chestnut team at SUNY-ESF has left no stone unturned in ensuring their handiwork comes without unintended consequences. The genetically modified chestnut trees have been tested for their interactions with soil microbes. The nuts have been subject to chemical analysis. Leaf decomposition was examined, as well as the effects the leaf litter would have on fish and aquatic insects. There were even trials that involved feeding the leaves to caterpillars to ensure that the new food is safe for the little guys. There are regulations from the USDA, the FDA and the EPA to ensure that genetically modified organisms are adequately studied prior to release. These requirements are currently being met, and, if all goes well, we can expect reestablishment at USDA test sites to begin in 2020.

In the meantime, there is still work to be done on the ground. In anticipation of the blight-resistant American chestnut trees, landowners are encouraged to establish “mother trees” on their

properties. These are plain old American chestnut trees without blight resistance. Chestnut trees typically produce pollen before they are mature enough to produce chestnuts. Because it takes time for a fungal spore to find each tree, many of these mother trees will survive long enough to produce viable flowers. This will offer a head start to the restoration effort, as there will be American chestnut trees capable of receiving pollen from their transgenic counterparts once those trees are capable of producing it. This can be done by directly applying pollen to mother trees or allowing recombination to happen the old fashioned way. Some of the resulting offspring will not carry the gene protecting them from blight, but about half will, aiding in the gradual resurgence of the species.

One of the most important ways hunters and habitat managers can contribute is to help identify wild populations where they still exist. In places where American chestnut was once common, stump sprouts can sometimes be found, if only in the understory. And, just because these vestigial shoots are susceptible to the blight does not preclude their genes from being maintained in the next generation of trees. Like any species that covers a vast geography, there is variability in the genetic makeup of American chestnut, and these variations result from their provenance. That is, local populations are better suited to that area than individuals of the same species which are transplanted from afar. This should come as no surprise to any QDMA Deer Steward graduate. In this regard, trees aren't so different from whitetails.

“Larger whitetails may be more desirable to a deer manager,” said Allen Nichols, President of the American Chestnut Foundation’s New York Chapter, “but the heavy-bodied deer from northern climates are not suited to the hot environment of Florida. The same species may be native there, but the genetics of local herds result in animals better suited to surviving in that region. It is like that with chestnut trees. The chestnut trees from your area may have genes that are not found anywhere else.”

Understanding Your Forest

By: Ryan Trapani, Director of Forest Services

Often when I go for a walk I like to try and figure out the history of a place. If you know a little bit about tree identification, shade tolerances, heights, diameter, and some local history, then a record of past events begins to emerge. Last week I was walking on a road in the Town of Shandaken in Ulster County. Tree sizes ranged from “poles” (trees that are about 4 to 10” in diameter) to larger trees (25” in diameter plus). Heights ranged from saplings (forest floor to 15 feet) to mid-size trees (20 to 50 feet) to large (30 to 80 feet). Species ranged from red oak, sugar maple, red maple, smoothbark hickory, eastern hemlock, eastern white pine, black birch, white ash, black cherry, and aspen.

Canopy Stratums or Tree Height

When deciphering the history of your forest, first look at “canopy stratums.” Canopy stratums are layers or heights of trees within a forest. For example, the forest I was looking at included 3 canopy stratums. The tallest trees (roughly 80 feet tall) were mostly sugar maple, black cherry, aspen, red oak, white pine and smoothbark hickory. Beneath these trees was a mid-story or layer of pole sized trees ranging in heights of approximately 20 feet to 50 feet; Most of these included sugar maple, red maple, white ash, eastern hemlock, and black birch. The lowest canopy stratum or layer were saplings that grew from the forest floor to about 15 feet; These included sugar maple and eastern hemlock. It should be noted that tree height is often overlooked in comparison to diameter when aging trees. For instance, it is assumed that the larger trees are older. However, pay attention to heights. Trees of similar height and species are the same age. For instance, white ash trees may vary in diameter within a stand or forest, but if their height is similar, they are most likely the same age. Some trees literally are “fat and happy” due to better growing conditions such as ample sunlight while their small diameter counterparts are merely suppressed from limited access. However, diameter still can indicate age since it does take some time to grow wood regardless.

Okay, so to recap, we want to break down the forest into canopy stratums or height by species. In general, the forest I was

looking at included the following:

- Scattered fat, tall, and dying sugar maples
- 80-foot-tall fruit and nut trees (red oak, smoothbark hickory, and black cherry) with white pine and aspen in between
- A mid-story of black birch, red maple, sugar maple, eastern hemlock, and white ash
- An understory of red and sugar maple, white ash, and eastern hemlock

Shade Tolerances

So, what we have not covered is shade tolerances. We know that the tallest and/or fattest trees are normally the oldest. We can tell that since there are three canopy strata, this forest has roughly 3 age-classes. So, what happened here? Knowing how to identify trees and their shade-tolerances can be quite revealing. For the sake of a shorter article, I will speak mostly in generalities; There are exceptions to every rule. First, let us define what it means to be “shade-intolerant.” Shade-intolerant means a tree cannot tolerate competition for sunlight very well with others. Shade-tolerant means a tree can somehow retain its leaves and “make food for itself” through photosynthesis despite limited sunlight; Tolerances vary across the board. For the most part, fruit and nut trees tend to range from shade-intolerant to shade-intermediate. These trees normally require some sort of disturbance to gain a foothold or competitive advantage over others. Examples include wild apple, cherry, mulberry, oak, hickory, the once-prevalent American chestnut, and aspen and paper birch.

In the Catskills, shade-tolerant trees tend to be from the maple-beech-birch (not paper)-hemlock forest type or “northern hardwood.” Red and sugar maple and American beech are quite tolerant of shade, while eastern hemlock is the most tolerant there is. Some trees are tolerant of shade when they are young and become less so as they age. Examples include black birch, white ash, and even white pine to an extent. In general, if you see a lot of shade-intolerant trees – black cherry, apple, aspen, paper birch – then some large disturbance probably occurred. Examples of large disturbances include recent farm abandonment, microburst or straight winds, hurricane, large-scale insect defoliation, large-scale

logging, and fire. If you see more shade-intermediate trees – oak, hickory, chestnut, white pine – then medium-scale disturbances probably occurred. Examples include periodic fire-return regimes, medium-scale logging, and distant farm abandonment. And if you see mostly shade-tolerants – American beech, sugar and red maple, yellow birch, and eastern hemlock – then disturbances have most likely been limited in nature. Examples of those include “selective” logging to minor wind, insect damage, or fire damage. See Table 1. for a reference of trees and their general shade tolerances.

Table. 1 Shade Tolerance of Trees		
Shade-Intolerant	Shade-Intermediate	Shade-Tolerant
Black Cherry	Red Oak	Sugar/Red Maple
Aspen	Smoothbark Hickory	American Beech
Paper Birch	White Pine	Black/Yellow Birch
	American Chestnut	White Ash

Putting it All Together

Alright, so we have covered canopy stratum or tree heights and how they can indicate age classes between trees. The taller ones are normally older than the shorter ones. Shade tolerances tell us about the frequency, size, and intensity of past disturbances; The more shade-intolerants we see, the greater the size/intensity of past disturbances. Now, let’s put it all together. The forest I was looking at contained 3 layers. In the uppermost layer or height were fat, old, and gnarly sugar maples, with similarly tall, but straighter red oak, smoothbark hickory, black cherry, aspen, and white pine growing between. Beneath this layer was mostly hemlock, maple, ash, and black birch in the mid-story. The youngest trees were mostly maple, white ash, and hemlock.

What’s the Story

Let’s describe what I believe happened, starting with the oldest trees. The “Oldest Trees” include a smattering of large, old, and dying sugar maples. These trees probably are over 125 years old or older. Due to their spacing and shape, they were probably used in a 19th century “sugarbush” used for tapping and making maple syrup from. Trees more open grown will have more branches in the

lower portion of the trunk since more sunlight was present for them to grow. I find a lot of these 19th century sugarbushes “up on the hill” where haying maybe was more difficult above an old homestead and trees were instead left to grow. A 19th century sugarbush was managed to increase spacing between a monoculture of sugar maple trees; The more sunlight meant higher sugar contents in the sap and saved time in processing into syrup. Most likely, when the farmer sold out, he had the best timber-quality sugarbush trees logged off leaving behind the worst ones. It was during this time that ample sunlight was created for the “Older Trees” to grow in or the shade-intermediate/shade-intolerants; These include oak, hickory, and white pine. Areas that were cut harder left enough sunlight for even some shade-intolerant trees like black cherry, and aspen.

Today, these trees are about 80 years old or older and their heights have caught back up to the dying sugarbush trees. The “fattest” or largest diameter trees among the “Older Trees” canopy stratum are the more shade-intermediate of the group, like red oak. The less tolerant trees – i.e. cherry and aspen – are suppressed looking and are smaller in diameter. But, don’t forget to look up; the cherry and aspen are as tall as the oaks! They are the same age, but just finding it difficult to grow and resemble tall, skinny sticks. After 80 plus years, the oak have achieved diameters that are ripe for a logger’s saw, but I would wait. Some of the less tolerant trees like black cherry and aspen are far past their peak and should be cut due to the better quality, and competing oak beside them.

Below the “Oldest Trees” and “Older Trees” are the “Younger Trees”; This is the mid-canopy of red and sugar maple, black birch, ash and hemlock. These trees don’t mind making it in the shade. Since they do not depend upon disturbance like oak, hickory, cherry, aspen and pine, the mid-story is quite dense with these trees. Most of the northeastern forest isn’t being disturbed like people think, and this is why the “densification” of the forest is increasing due to this layer, which if left to its own devices, will eventually catch up to the taller trees and out-compete that layer. This is both good and bad but beyond the scope of this article to go into.

The “Youngest Trees” can be found growing on the forest floor up to about 15 feet. These are the most shade-tolerant trees since they are buried beneath two canopy strata above them. These trees include shade-tolerant maple, hemlock, and white ash. Often American beech is found growing in this layer, but not in this particular example-forest. Many of the maple seedlings will not be present the next year due to deer browse. We did not cover the “periphery of the forest” or the edge. These contain a variety of shrubs and my favorite – wild apple. It is here where the old “door-yard” or farmstead was located and represents the last place to be “abandoned” and left to natural succession. Shade-intolerant plants are filling in the spaces right now. This layer is highly important for bedding deer, grouse, rabbits and other birds and small mammals. The apple may have seeded from a planted one long gone, but still evidence to the Forester that something occurred.

The future of this forest will be influenced by disturbances as well as the lack thereof. Many forests undergo “selective logging” where only the fattest trees are harvested. This is potentially bad for two reasons. (1) Remember how canopy strata indicate age-classes and not necessarily diameter alone? If you’re removing only the largest diameter trees, you’re simply taking the fastest growing and healthiest ones; This is also known as high-grading since you’re leaving behind the runts or suppressed trees. (2) “Selective Cutting” can be bad if you want more shade-intermediate and shade-intolerant trees since not enough sunlight is created from the limited amount of canopy removal. In other words, you might be managing only for more sugar maple, red maple, American beech at the expense of fruit and nut trees. Also, this type of cutting practice fosters three plants we haven’t mentioned – New York fern, eastern hayscented fern, and Japanese stiltgrass. These plants can significantly choke out future tree seedling regeneration as well as quality cover for wildlife; This is something to be cognizant or deliberate about. In any case, use the above two tables to find out what might have occurred in your forest. You too can use some “forest forensics” to decipher the past.

Programs & Services -

Learn more at catskillforest.org/programs

<u>Program</u>	<u>Description</u>	<u>Time</u>
Consultations	<i>One-hour property visits by field staff to help you learn about what your property holds</i>	All Year
Apple Tree Pruning	<i>Pruning helps keep apple trees healthy and improves quality and quantity of yields</i>	Jan. - March
Apple Tree Grafting	<i>A horticultural technique to help bring old, neglected trees back to fruition</i>	April - May
Forest Bird Program	<i>High-Nesting Bird Boxes for ducks, owls, etc. and/or Canopy Bird Feeders that protect against squirrels & bears</i>	All Year
Invasive Species Management	<i>Care for trees against invasive insects, and care for forests against invasive plants</i>	May - Sept.
Portable Sawmill Program	<i>We bring a state-of-the-art portable sawmill directly to your property and mill your logs to lumber, on the spot.</i>	Spring - Fall
Property Mapping	<i>Custom property maps highlighting the property features you want to see</i>	All Year
Trail Camera	<i>Ever wonder what wildlife is around when you're not?</i>	All Year
Wildlife Habitat Management	<i>Forestry practices to help improve your woodlot for wildlife</i>	All Year



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Consultation; Events free or discounted; CFA News Subscription; CFA Member Property Sign; Access to CFA Programs	SAME AS BASIC + 20% Discount on Services; CFA Totebag	ENDOWMENT TRUST FUND	\$
BUSINESS (\$200)	SUSTAINING (\$500)	SCHOLARSHIP FUND	\$
SAME AS BASIC + 10% Discount on Services; CFA Website Listing; Email Referral Advertisements; Free Booth at Forest Festival	SAME AS BASIC + 30% Discount on Services; CFA Backpack	Total Amount: \$ _____	