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PAGE 13

Rare and Endangered

SAVE THE DATES: The American Conifer Society National Meeting June 14 - 17, 2018

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CONIFER
QUARTERLY

Cover Photo
Keteleria davidiana Taiwan and SE Asia. Photo by Tom Cox. Climate Zone Cwa

TABLE OF CONTENTS

Florida's BIG Bald Cypress

FROM ASHES to REBIRTH

By Ronald J. Elardo, PhD

For millennia trees, especially conifers, have silently witnessed historical moments. In the darkest of times, the pines of the forests of Latvia, Lithuania, Belorus, Serbia and other Eastern European countries served as the Nazi *Einsatzgruppen* funeral pyres for victims of the Holocaust.

In better times, Bristlecone pines *watched* from afar the erection of the great pyramids at Giza; the building and the collapse of Rome. Those pines lived as the Chinese empire rose and fell; as Noah saved the human race.

Florida's BIG bald cypress, The Senator, was alive when Helen of Sparta became Helen of Troy.

The Senator died when Barack Obama was America's first African-American president.

The Senator, having stood for 3,500 years, died on January 16, 2012. The tree had weathered lightning strikes and hurricanes which had truncated its height. But it was human carelessness which did him in.

On January 16, 2012, The Senator caught fire when "Sara Barnes, a part-time model with a stargazing hobby and a history of methamphetamine arrests,…climbed into the hollow base of The Senator and lit a fire. By the time … Seminole County firefighters [arrived] the massive tree was a column of flame, burning from the inside out. The fire raged for hours; still burning, the top 100 feet of the tree collapsed." (*The Observer,* "Forgotten experiment resurrects The Senator" by Isaac Babcock [March 6, 2013].)

Dennis Groh wrote about the *Taxodium distichum* named "The Senator" after Moses O. Overstreet, "a former [Florida] state senator, who donated six acres … to protect the baldcypress from development." (*Conifer Quarterly*, Vol. 27 No. 3, Summer 2010, pp. 10 – 12.). Increment bore samples were used for the dating.

According to Babcock's reporting, the clones of The Senator came from a branch which had been downed in a storm, long before the fire. "'That branch had tiny buds on it, the keys to cloning a tree.'" (Babcock) Layman Hardy, a science teacher from Miami found the broken tree branch. Don Rockwood, a University of Florida forest genetics professor, said that 10 trees were cloned onto baldcypress root stock, with a 70% success rate, better than the usual 10% success rate for baldcypress.

A clone of the big tree had been growing in Marvin Buchanan's tree farm in North Florida. That tree was painstakingly and meticulously dug and prepped for transport to the area where the ruins of The Senator now stood, about a football field away. It was 89' tall and estimated to be 2,000 years old.

A fourth grader at Geneva Elementary School in Seminole County, May Frangoul, won the contest to name The Senator's brother/sister. The new baldcypress is called The Phoenix, after the mythical bird which is reborn from its own immolation.

"Frozen in time, the charred base of The Senator rests." (Babcock) Nearby stands The Phoenix.

Even now, tiny buds are growing in The Phoenix. Obviously, more to come.

Note: To no avail I have reached out to Isaac Babcock and *The Observer* in order to obtain photos of The Senator, but I have not received any responses. If interested, you can go to the website of *The Observer.*

Search the story of Babcock's article, March 6, 2013 and see what the fire had done.

NOTE: *I would like to thank the Southeastern Region and its newsletter for sharing Jody Karlin's, Neil Fusillo's and Tom Cox' articles with me for this issue of the CQ*

American Conifer Society National Meeting
June 14 - 17, 2018

By Jennifer Harvey

Sarah P. Duke Gardens

The Southeast Region hosts the **American Conifer Society National Meeting June 14 - 17, 2018**. We will also be offering a spectacular post-meeting tour 17-18, 2018. Our host city is Raleigh, NC, and we have already lined up some really beautiful things to see and do. The meeting hotel is the Embassy Suites by Hilton, Raleigh Durham Research Triangle in Cary, just outside the city of Raleigh. We stayed a weekend at this hotel when we were looking for venues for the meeting and were very impressed. Each room is a suite and has a refrigerator and microwave for that midnight snack. Yes, there is free Wi-Fi. The complimentary cooked-to-order breakfast buffet is top notch and you should not go away hungry. TripAdvisor gives it 4 ½ stars!

Bus tours on Friday and Saturday include some very special private conifer gardens, as well as visits to two very special public gardens, where we will be treated to lunch:

Cryptomeria japonica 'Chapel View' witch's broom
Photo by Lori Sullivan

Sarah P. Duke Gardens

In the early 1920s, Duke University's planners intended to turn the area where the Sarah P. Duke Gardens are currently located into a lake. Funds for this project ran short and the idea was subsequently abandoned. The gardens then officially began in 1934, when Dr. Frederick Moir Hanes, a faculty member at the Duke Medical School, persuaded Sarah P. Duke to give $20,000 to finance the planting of flowers in the debris-filled ravine. By 1935, over 100 flower beds consisting of 40,000 irises, 25,000 daffodils, 10,000 small bulbs and assorted annuals graced the lawns. Unfortunately, the heavy rains of that summer and the flooding stream completely washed away the original gardens. By the time Sarah P. Duke died in 1936, the gardens were completely destroyed. Dr. Hanes was able to convince Sarah P. Duke's daughter, Mary Duke Biddle, to finance a new garden on higher ground as a memorial to her mother. Ellen Biddle Shipman, a pioneer in American landscape design, was chosen to create the new garden, known as the Terraces, in the Italianate style. They are considered by many to be her greatest work.

Pinus taeda Photo by Sandy Horn

Japanese Garden Photo by Sandy Horn

Duke Gardens is situated on 55 acres on the campus of Duke University and is named one of the top 10 public gardens in the U.S. by tripadvisor.com. Among its many features are Italianate terraces, a Japanese Garden, a garden of native plants, a white garden, and a SITES certified organic food garden.

J.C. Raulston Arboretum is a 10.5 acre arboretum and botanical garden administered by North Carolina State University. The Arboretum was established in 1976 by the late Dr. James Chester "JC" Raulston (1940-1996).

In 1975, J.C. Raulston arrived in the Department of Horticultural Science at NC State University to teach and to start an arboretum which would serve as a living laboratory for students and faculty, and a resource for professionals in the green industry and for the public. In 1976, with a master plan drawn up by his graduate student, Fielding Scarborough, J.C. made the first plantings at the North Carolina State University Research Farm Unit 4 (now the Horticultural Field Laboratory) on Beryl Road on portions of an eight acre parcel designated as the NCSU Arboretum, assisted by his research technician Newell Hancock and a few dedicated students. Over the years, the Arboretum would grow to ten and a half contiguous acres, be renamed in his memory as the J.C. Raulston Arboretum at NC State University, and achieve international recognition for its imaginative use of resources and the excellence of its plant collections.

Since J.C.'s death in 1996, the Arboretum has moved forward under the directorships of Bryce Lane, Bob Lyons, Kim Powell, Denny Werner, and Ted Bilderback. The current director is Mark Weathington.

Early landscaped garden areas included the Perennial Border, Mixed Border, White Garden, Lath House, Rose Garden, Winter Garden, student-designed Model Gardens, and the Necessary. Periodically rebuilt, revised, and replanted, these areas were later joined by the Asian Valley, Plantsmen's Woods, the Swindell Contemplation Garden, Xeric Garden, Scree Garden, and numerous other gardens and pathways made accessible for the disabled and all visitors. Outstanding plant collections grew and changed, including conifers, redbuds, magnolias, and others.

While there are two designated conifer areas in JCRA, many conifers are displayed in mixed plantings so that visitors can explore how conifers can be used in their own gardens. JC Raulston Arboretum is a Southeast Region Reference Garden.

Although the agenda is not complete, we have already secured two wonderful speakers -- Tony Avent, owner of Plants Delights Nursery and Juniper Level Botanic Gardens, and Mark Weathington, director of the J.C. Raulston Arboretum. Of course, we will be holding the legendary silent and live auctions the Southeast Region has become rightfully famous for, on Saturday night.

Sunday morning, after your complimentary breakfast, you will have one last chance to go home with something from the fabulous "Morning After Sale". TOTALLY not to be missed.

Post-Meeting Tour: Asheville, NC Area – Sunday, June 17-18, 2018

The Post-Meeting Tour offers a rare opportunity to see hidden gems in the Asheville, NC area and to enjoy a lovely dinner at the garden of members Missy and Wayne Galloway. Dinner in their spectacular garden will be followed by an auction of special conifers and maples, limited to post-meeting tour participants, only. We are in the process of filling out the agenda for the post tour with more gardens and opportunities for acquiring plants from the premier nurserymen in western North Carolina. We highly recommend that you also take time to explore Asheville. It's one of the great treasures of the Great Smoky Mountains, where the Vanderbilts chose to spend their summers at Biltmore Estate and where the shopping, restaurants, and galleries cater to eclectic tastes.

This is just a taste of what the 2018 National Meeting will include. Please check the ACS website often. We will be posting more details as they become available. We will also include articles in future editions of *Conifer Quarterly*. Save those dates!!!

Jeff and Jennifer Harvey

SE Region Sec./Treasure and chairs of the 2018 National Meeting

Galloway Garden Photo by Sandy Horn

New Conifer Beds, Tom Hinton installing plants

Conifers Still Key at the J.C. Raulston Arboretum at NC State University

By Mark Weathington, Director of the J.C. Raulston Arboretum

When J.C. Raulston first came to NC State University in 1975 to kick off a new program in woody ornamentals, he wasted little time before installing conifer trial beds. The conventional wisdom said that conifers would not grow in the hot, humid southeastern US, but J.C. soon proved otherwise. The original conifer collection flourished over the years, and conifers were added throughout the JC Raulston Arboretum (JCRA). As trees grew, the conifers became somewhat shaded, and, when the JCRA added an additional 2 acres, it was decided that new conifer beds in the full sun were needed. Thanks in part to a grant from the American Conifer Society, Southeastern Region, these new beds are establishing well.

J.C.'s philosophy was to plant straight in the red clay to test plants in the same way many homeowners do. Over the years our techniques have changed. And, since we constantly remind our members and visitors that a successful garden starts with the soil, we now amend our new beds to give plants their best chance to thrive. The new bermed beds built for the conifers were created with approximately 2 parts native top soil (red clay), 1 part expanded slate (Permatill), and ½ part Novozymes compost. The combination of clay, expanded slate, and compost has worked well throughout the JCRA providing excellent fertility, aeration, and water holding capacity while limiting compaction and settling of soil.

Tim Hinton installing conifers Photo by Sandy Horn

A crushed gravel path made from a local material known as Chapel Hill gravel combined with some permeable pavers forms the path system and makes an excellent contrast with the mulched beds and ties this collection to our other Arboretum paths. After the beds were roughly constructed and bermed to about 36", paths were cleared and compacted. A base layer of crushed stone 3"-4" thick was put down. Paths were graded to a low spot which was dug out to create a 3'x3' dry well filled with gravel and topped by permeable pavers. The crushed stone paths were compacted and topped with 1" of Chapel Hill gravel which was again compacted.

New conifer beds, March 4,2016 Photo by Jennifer and Jeff Harvey

A total of about 123 conifers are currently under evaluation in these conifer beds, and the JCRA currently has over 560 conifers throughout the Arboretum (go to https://jcra.ncsu.edu/horticulture/our-plants/index.php to see what we are growing), and an additional 75 or so in the nursery are waiting to be planted. The plants have grown well and are thriving, but the dwarf nature of most of the selections we had planted did nothing to obstruct the not-so-lovely view of NC State field research plots. With the help of a new grant from the Southeastern ACS, a selection of upright conifers was added along the backside of the beds to help screen the view.

New conifer beds, June 1, 2017 Photo by Jeff Harvey

Altogether, nearly 2 dozen different fastigiate and upright weeping selections have been planted as a backdrop to the dwarf conifer beds. The desire to add this type of mixed hedge certainly goes beyond the need to block an ugly view. Landscapers and garden designers are actively looking for plants that go vertical without spreading wide to fit the increasingly limited space in urban and suburban environments. A selection of columnar and fastigiate trees surrounds our parking area and are of major interest to garden designers.

Since the collections are being evaluated, there is a regular shift in emphasis for the collections to reflect current interests. The 100 year drought of 2007 reminded us how extremely drought tolerant *Podocarpus macrophyllus* is once established. We've been collecting all the forms of it and other podocarps we can find to evaluate ever since. Of course, many of the species are quite tender, but we don't take anyone's word until we kill them ourselves.

As the conifer collection grows, it remains a key feature of our evaluations and a source for information about what performs in the southeast. We are actively trying to cultivate as wide a diversity of genera as possible to display the incredible range of conifers available for the landscape. In addition, we have begun propagating and growing a variety of "plasticarps" to replace the interior plants in our education center. These are the tropical and sub-tropical conifers with mostly wide, plastic-textured foliage which grow well in relatively low light conditions. Plants we are growing in this group include *Sundacarpus amarus*, various *Agathis* species, podocarps, and *Araucaria*.

We look forward to sharing the collection with our fellow coneheads during the 2018 ACS conference in Raleigh.

Cryptomeria japonica 'Chapel View'

By Paul D. Jones, Founding Curator Of The Culberson Asiatic Arboretum NC State University.

On a campus where Blue Devils rule, it shouldn't be surprising to learn that witches are also frequent visitors—at least this is the conclusion one might come to when considering the numerous witch's "brooms" in evidence around campus. Navigation not being one of their strong suits, these brooms are most often found tangled and abandoned high in the canopies of oaks and maples and pines and such. What the devil, you might by this point be thinking, is he on about?

Witch's brooms can be found in many shapes and sizes and are more common in trees around campus, especially old pines, than you probably realize. These brooms are not, as lore suggests, the wrecked vehicles-of-choice of old Wiccan aviators; nor are they, as was speculated in earlier centuries, the result of a tree having been bewitched. The abbreviated version of the story is that stressors to trees of many kinds, biological or environmental, can in some instances damage cells and lead to abnormal growth from the point of injury. Given ample time, this atypical growth develops in some cases into a twiggy mass that, attached to a limb of broom handle diameter, begins to resemble the apparatus employed by the Wicked Witch of the West to chase Dorothy and Toto around Oz.

Witch's brooms have long been sought by horticulturists as a potential source for variant plant selections, especially dwarf conifers. Though many of these aberrant growths are unstable and revert to normal characteristics when propagated, some are actually fixed mutations which, when asexually propagated, lead to new introductions for landscape use.

Perched high in the top of an old Japanese cedar, *Cryptomeria japonica*, growing on the south side of Chapel Drive near the traffic circle, is a healthy and quite spectacular witch's broom, which is (no play on words intended) probably about 30 years old. I first noticed this broom in the early 1990's, and being as I was at the time infatuated with dwarf conifers, I contacted the University grounds department and got permission to attempt propagation. Fortunately, the host tree was a very easy climb, and so I took about 100 cuttings and successfully rooted about 40. The result is a shrubby form of Japanese cedar that grows at about one tenth or less the normal rate for this species. Its habit is slightly higher than wide and, when grown in good conditions in high light. is very dense. The name decided on for the selection is 'Chapel View'.

'Rasen'

'Cristata'

Cryptomeria japonica

Text and photographs by Jody Karlin (Conyers, near Atlanta, Georgia)

When you love and appreciate the beauty of something, it is human nature to want to nurture it, collect it, and own it. I have to admit, taking on the task of building a garden in the deep South using mostly conifers has been a somewhat challenging experience. Couple the desire to acquire and collect all you can with the arrogance to believe that you can keep it alive where others have failed, and it enables one to build one heck of a collection, at least for a while. "Kill and Learn" is my motto after trying to maintain the various genera and species in the heat of the South, and I have an upscale BMW in dead plants on my resumé to prove it.

One monotypic genus that truly inspires my collecting addiction is *Cryptomeria japonica*. Provide raised beds for good drainage and enough moisture, and most Japanese cedars will do great here. What I like most about *Cryptomeria* is the varied and mutated cultivars. I call it the "Chernobyl" of genera. The diversity of cultivars, which range from very large to very small, with unique foliage and winter changes in color, testify to the diversity of this genus.

The twisted needles of 'Rasen', the fasciations and cockscombs of 'Cristata', and the wiry, long branches of 'Araucarioides', which I call the "Medusa Crypt", are only a few of the cultivars I could list that exhibit highly unusual foliage.

Many large growing cultivars like 'Yoshino', 'Jindai' and the yellow tipped 'Sekkan' are available for screens, but many more cool dwarfs abound. Medium sized trees, like the 10' 'Taisho-tama', stay nice and compact, as do 'Yellow Twig' and 'Pom Pom'. And, some grow into "meatballs" – about as high as they are wide - like 'Globosa Nana', 'Elegans Nana', and 'Little Diamond'. Then there are true miniatures like 'Tenzan'. The one pictured here is 20 years old.

'Araucarioides'

'Knaptonensis' in Winter

'Knaptonensis'

Many *Cryptomeria* change colors in the winter, here in the Southeast. For instance, *Cryptomeria japonica* 'Knaptonensis', which has beautiful, white-tipped foliage in spring and summer, bronzes heavily in the winter. You can always bet your neighbor $20.00 that it's not dead...you won't win twice! Others, like the 'Birido' shown to the right, turn purple.

Given proper drainage and enough moisture, *Cryptomeria japonica* cultivars will give you a very diverse group of plants to utilize in your garden design.

About the Author

Jody Karlin settled in Atlanta in 1989 after graduate school in NY and started **Just Add Water**, his custom design aquarium business. He bought his first house and first conifer in 1997 and proceeded to collect anything and everything he could get his hands on. His two acre garden now has 2000 plant cultivars. www.jawsaquarium.com

'Tenzan'

'Birido'

Rare and Endangered Conifers in an Unlikely Home

Text and Photos by Tom Cox

When one thinks of *ex situ* (outside its natural habitat) collections of rare and endangered conifers, institutions such as Bedgebury Pinetum, Kew Gardens, Arnold Arboretum, and Missouri Botanical Garden come to mind. Each of these do in fact have impressive collections with Bedgebury likely being at the top. One of the last regions one might consider looking would be the Southeast U.S – a region generally viewed as unfriendly to conifers.

When the Cox Arboretum was started 26 years ago, no thought was given to conifers – period. As the years went by here, we started acquiring more and more. Soon a love affair began with conifers; the majority being cultivated varieties (cultivars). Then at some point along the growth curve, I became more and more fascinated with straight species, which I find every bit as beautiful as any cultivar. In fact, today my major focus is on species conifers. Of primary interest was evaluation of species that had never been trialed in the southeast or rarely seen in any botanical garden or arboretum. By way of example, we are currently trialing 21 different *Abies* (firs) on their own roots and are collecting data on these firs from various regions of the world to determine what might adapt here (more on this project in a later article).

Today, we are widely considered to house one of the largest (most complete) conifer species collections in the U.S. There are so many species that would not survive further north or further south than Zone 7b. For many species, such as those native to Southeast Asia, our climate is even more hospitable than Northern California, Oregon or Washington.

Several factors contribute to this with the first being that we receive, on average, **55 inches** of rain per year, and the rain is distributed throughout each month. The US average is 37. The second factor is no temperature extremes on either side of the dial. While it can get hot, more conifers than not actually benefit from summer heat and humidity. Other factors in our favor include a long hardening-off period, which enables our plants to shut down early enough to be prepared for winter. Remember, it's not how cold it gets, but how it gets cold. We have a long growing season, and even our coldest days are short lived. Some plants are able to withstand some cold as long as that cold is not long in duration.

Pinus lumholtzii from Mexico

Chamaecyparis hodginsii from China and Vietnam

These facts are seldom mentioned (if at all) outside of academia, since most conifer discussion in the U.S. is focused on what does well in regions considered conifer friendly, e.g., Michigan, New York, Oregon, etc. For every plant we cannot grow well, such as interior conifers from the Northwest, there are dozens that will prosper here. Until now, they have never been tried, there is no literature, and many are next to impossible to locate. Happily, institutions such as the J. C. Raulston Arboretum and Atlanta Botanical Garden, along with pioneering research by Dr. John Ruter, are helping to change this. I also am aware that ACS members Neil Fusillo and Scott Antrim are creating an impressive inventory of species conifers.

A natural off-shoot of a large species collection is that a number of these are rare and endangered. Approximately eight years ago, we were contacted by Botanic Gardens Conservation International (BGCI) and asked to participate in a survey of worldwide gardens holding large *ex situ* collections of threatened conifers. The overall goal is to support the Global Trees Campaign (GTC), a joint initiative between BGCI and Fauna and Flora International to safeguard threatened tree species.

A global reassessment of the conservation statuses of the world's conifers was undertaken, and up-to-date assessments were published in the IUCN (International Union for Conservation of Nature) Red List of Threatened Species in July 2013. This work was coordinated by conifer expert Aljos Fargon and jointly undertaken with staff at the Royal Botanic Garden, Edinburgh. The global reassessment highlighted that 34% of conifers are globally threatened with extinction. Yes, extinction.

Podocarpus macrophyllus from China

Maintaining *ex situ* collections is important as it provides a back-up if wild populations are lost due to natural disasters, vandalism, invasive pests or diseases, or human disturbance. Think of it like a zoo. They are also important for breeding purposes, as in the case of our native eastern hemlock (*Tsuga canadensis*) which is being decimated by the wooly adelgid (*Adelges tsugae*). Active breeding work is presently going on using Asian species which are immune, in an effort to develop a disease resistant tree.

The Big Picture: Depending on the taxonomist, there are approximately 615 conifer species recognized globally. As mentioned above, in 2013, 34% (or 211 species) were listed as threatened with extinction – an increase of 4% since the last complete assessment in 1998.

Of these 615 species, many are native to more tropical regions of the world such as New Caledonia, Fiji and New Guinea. These obviously are not suitable for planting outdoors in Zone 7b. With the exception of several *Araucaria*, *Agathis,* and *Nageia* species, which are grown as houseplants, we do not collect tropical conifers at Cox Arboretum, and they are not counted in our inventory of endangered plants. In our most recent inventory, we verified 76 temperate species on the property that are listed as threatened. Likely, few institutions in the U.S. have this many threatened species growing in one place.

Native here in the Southeast is one of the rarest conifers in the world, *Torreya taxifolia*. For thousands of years, it was a large evergreen tree endemic to the ravine forests along the Apalachicola River which snakes through the Florida panhandle. Somewhere around 1950, the tree suffered a catastrophic decline as all reproductive-aged trees died. In the decades to follow, the species has not recovered. What remains is a population at approximately 0.3% of its original size, in a manner reminiscent of American chestnut

Cathaya argyrophylla from China, showing the abaxial side of the leaf

following chestnut blight. While the pathogen (*Fusarium torrayae*) has been identified by researchers at the University of Florida, no cure has yet been developed. Propagation efforts spearheaded by the Atlanta Botanical Garden have resulted in a significant quantity of clones being distributed to a number of botanical institutions. We are proud to have received three trees that are growing on.

In addition to the aforementioned *Torreya taxifolia*, I will discuss two more. *Pseudotaxus chienii* (Whiteberry yew), is the only species of this genus. It is endemic to southern China and is listed as vulnerable on the IUCN Red List. Only 10 populations remain in China. Over the past three generations (90 years) the populations have been reduced by more than 30% due to exploitation and habitat loss. Adding to its decline are factors such as naturally occurring in low density and poor regeneration ability. While we have but one plant, it has grown well here for over 10 years and is well adapted. The fact that we only have one plant is somewhat problematic as it limits our genetic diversity or gene pool. The third highlight plant is ***Cupressus chengiana* var. *jiangensis***, which is only known from a single tree. Reportedly, there are fewer than 50 mature individuals of this variety that have been recorded.

Other rare and endangered conifers of note growing at the Arboretum include:

Abies nordmanniana* ssp. *equi-trojani

Glyptostrobus pensilis

Juniperus bermudiana

Nothotsuga longibracteata

Picea martinezii

Picea neoveitchii

Pinus armandii* var. *mastersiana

Torreya jackii

Torreya fargesii* var. *yunnanensis

In conclusion, there are many conifer species that are of interest that have proved to be adaptable here in Zone 7b. Visitors here continue to remark about the beauty of many of these and how unusual they are. As an added bonus, we are providing a home for some of the rarest conifers on earth.

Keteleria davidiana from Taiwan and SE China

Conifer Ridge Garden, Toledo, Ohio

Designed by Hans Thum, Temperance Garden Specialties

Photos by Ron Elardo

Front Scape Terrace

Front Scape Terrace

Front Scape

Pinus strobus 'Niagara Falls'

Back Scape

Pinus parviflora 'Bergman'

Pinus wallichiana 'Zebrina'

Juniperus chinensis

Front scape

Sciadopitys verticillata, Japanese umbrella tree

Excerpted from: Gone But Not Forgotten, Joe Burke

Text and Photos by Bob Fincham

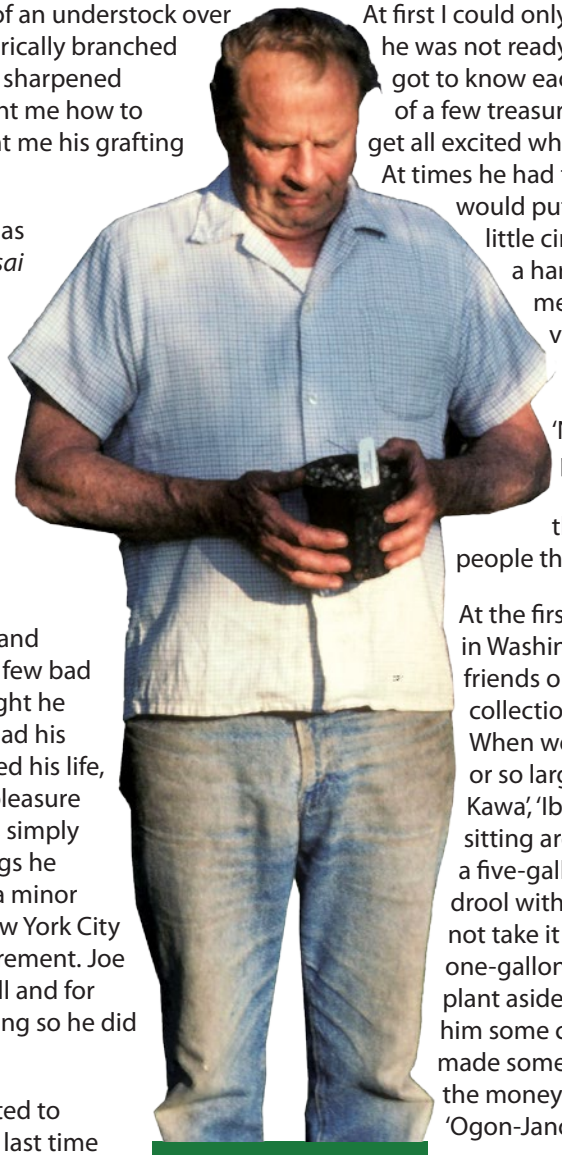
Anyone who never met Joe Burke missed out on one of life's little treats. Whenever I visited Joe, I would wonder "What is he up to now?" Joe was well known to most of the knowledgeable *bonsai* people in the New York area. He pioneered root-crown grafting for *bonsai* in this country. Knowledgeable people used to tell him that root and stem cambiums were incompatible and could not be grafted together. He proved them wrong time after time. He was an artist with a grafting knife, even though he was never a commercial grafter.

Joe showed me some *Pinus thunbergii* 'Nishiki Tsukasa' plants that were triple grafted into the stem of an understock over a three year period, creating a symmetrically branched plant. He was a perfectionist and once sharpened knives as a source of income. Joe taught me how to sharpen a grafting knife. He also taught me his grafting techniques.

Joe worked with some excellent pines as he developed some rather choice *bonsai* plants. Through Joe's efforts, *Pinus parviflora* 'Ara-Kawa' and 'Ibo-Can' were propagated into respectable quantities. *Pinus thunbergii* 'Nishiki Tsukasa', which Joe contended is the best corked-bark, Japanese black pine, was developed in large numbers by Joe from two scions that he purchased in the 1960's for $250.00 each.

In WWII Joe was a marine fighter pilot and fought against the Japanese. He had a few bad experiences in combat and once thought he was dead when he crash-landed and had his plane flip over. That experience changed his life, and from then on he lived life for the pleasure it gave him. To be successful in life was simply to live it and enjoy it by doing the things he wanted to do. Financial rewards were a minor consideration. Joe taught school in New York City until he was able to take a modest retirement. Joe enjoyed doing *bonsai* and he did it well and for many years. He enjoyed knife sharpening so he did that for a while, too.

Whenever I visited Joe, he always wanted to know what I had been doing since the last time I had seen him. He always offered to make me something to eat while we talked. When I invariably turned down the meal, he would always say "Good! I didn't really want to make anything anyway." He would then talk about his bell collection or an old truck camper (which he was planning to renovate). Then we would talk about Oregon, a place I had visited once or twice. Joe was very interested in Oregon because he thought he might move there. He always figured that in the event of a nuclear war that would be the safest place to live since there would not be any fallout from cities to the west since there weren't any.



Joe Burke

Joe's interest in *bonsai* was starting to fade when I met him. At first I could only purchase a few plants from him as he was not ready to release some things. After we got to know each other, I was able to talk him out of a few treasures. Joe loved to bargain and would get all excited when we played "Let's Make a Deal". At times he had trouble containing himself and would put his hands in the air and dance in a little circle. He acted as if he were driving a hard bargain but would always sell me plants at a fraction of their true value. I obtained a number of Joe's older stock plants of *Pinus Parviflora* 'Ogon-Janome', and *Pinus thunbergii* 'Nishiki Tsukasa'. I was able to purchase these plants because Joe knew I would make propagations of them available to a large number of people through Coenosium Gardens.

At the first American Conifer Society Annual in Washington, DC, I took Jean Iseli and a few friends on a tour of some Long Island conifer collections. Joe's place was one of our stops. When we were there, Jean admired the fifty or so large plants of *Pinus parviflora* 'Ara-Kawa', 'Ibo-Can', 'Ogon-Janome' that Joe had sitting around his property. He offered Jean a five-gallon plant, causing Jean to almost drool with desire. Unfortunately, he could not take it on the plane and asked Joe for a one-gallon plant instead. As Joe set the larger plant aside, I saw an opportunity and offered him some cash for it. Joe danced in a circle and made some singing sounds before he accepted the money and I had my first specimen of 'Ogon-Janome'.

In the winter of 1987 I took some conifer

Pinus parviflora 'Ogon-Janome'

friends from Oregon back east on a scion collecting trip. Joe's place was one of our stops. Eddie Rezek joined us when we visited with Joe. We spent some time exploring Joe's greenhouse and in the back of the greenhouse was a seedling from *Pinus densiflora* 'Oculus Draconis' that Joe had been growing. Eddie had been trying to get it from Joe for several years. As a young plant it had red bands instead of yellow bands on the needles. Joe would not part with it. During this visit, however, Joe was all excited and having a great time. When Eddie brought the plant out of the greenhouse and offered Joe some cash for it. Joe sold it to him. It never showed any red, only yellow variegation so I do not know who made out the best on the deal.

Joe Reis had told me about Joe's red seedling years earlier. He had once grown some seedlings from *Pinus densiflora* 'Oculus Draconis' himself, and several of them had red bands. But after two years the red had disappeared and only yellow was present. He thought that Eddie was silly to go after Joe's plant. Interestingly enough, even though the red is gone, *Pinus densiflora* 'Burke's Red Seedling' is an excellent selection of variegated Japanese red pine. The yellow bands are very bright and consistent.

Joe liked to graft onto *Pinus parviflora* seedlings. Since they were hard to find, he always grew his own and made some interesting selections. He let me have one selection that I feel was the best of all that he found. With his permission I named it 'Burke's Bonsai' because of its many *Bonsai* attributes. Interestingly enough it is also an excellent landscape plant. The needles stay short and thin, the growth is asymmetrical, and the cones are quite small.

As Joe was losing interest in *Bonsai*, he was becoming interested in sewing machines. There was no connection at all between these two things, but Joe always had a love for precision machinery. He would purchase old sewing machines and rebuild them. Whenever I visited Joe, I heard a discourse on sewing machines and was often given a demonstration of what some of his machines could do. Joe felt that they had the same precision as a fine watch.

Joe died unexpectedly in December, 1988 after living a happy life doing the things he enjoyed. Not many of us can say that. I miss the pleasure of dickering over plants with him or seeing him operate one of the sewing machines he salvaged and rebuilt. But I think of him whenever I pass one of the plants I purchased from his collection.

(Captions next page)

Pinus parviflora 'Ibo-can'

Captions for photos

These shots were taken when I took my nursery friends from Oregon to Joe's place. We explored his greenhouse and overwintering house to see what we might find of interest that we could perhaps talk him into parting with. Eddie picked up the 'Burke's Red Seedling' at this time.

Pinus parviflora 'Burke's Bonsai' is an irregularly growing, open-branched, small tree, with a proclivity for producing adventitious buds up to a year on old wood.

Pinus parviflora 'Ibo-can' is a nice selection for *bonsai*. It is densely-growing with bark that grows in a wart-like pattern, making a young tree appear to be quite old. The foliage is blue with long, twisted needles, which works against its suitability for *bonsai*. I enjoy it as a landscape plant. (GF)

Pinus parviflora 'Ara-kawa' is another selection that develops interesting bark. Its bark is very rough, making it popular for *bonsai*. Its foliage is green with long, slightly twisted needles. In the landscape it tends to grow more horizontal than upright. (CG)

Pinus parviflora 'Burke's Bonsai' is an irregularly growing, open-branched, small tree, with a proclivity for producing adventitious buds on up to three year old wood, creating areas of dense foliage on the tree. Its foliage is dark green with short, straight, thin needles. It was one of Joe's seedlings that he grew for use as understock. (CG)

Pinus parviflora'Ogon-janome' is a tree that becomes quite open-branched as it ages, unless periodically pruned. The foliage is strikingly beautiful: slightly twisted, dark green needles with wide, golden bands. (CN)

Discovering Conifers

By Neil Fusillo (Marietta, GA)

For those of us who have been bitten by the conifer bug, there's nothing quite as exciting as going to a local nursery and finding a conifer we've never seen before. It may bear a foreign name, or an unfamiliar pattern or color. And, while it may not quite fit in our gardens, or it may not grow well in our climate, we may drop some serious money to give it a try anyway, because it's new and exciting and different. But where do these conifers come from? How do they wind up in those local nurseries? And where on earth do they get those *names*??

Discovering a new cultivar of conifer is an obsession for some and a mild distraction for others, but it often seems the purview only of the deeply experienced within the conifer field. While the knowledge surrounding cultivar hunting is a bit steeped in legends and tales, the truth is, anyone can do it. And once you understand what to look for, and what to do when you find something new, it can be an incredibly rewarding experience when you wander into that local nursery one day and see your own discovery there on the shelves.

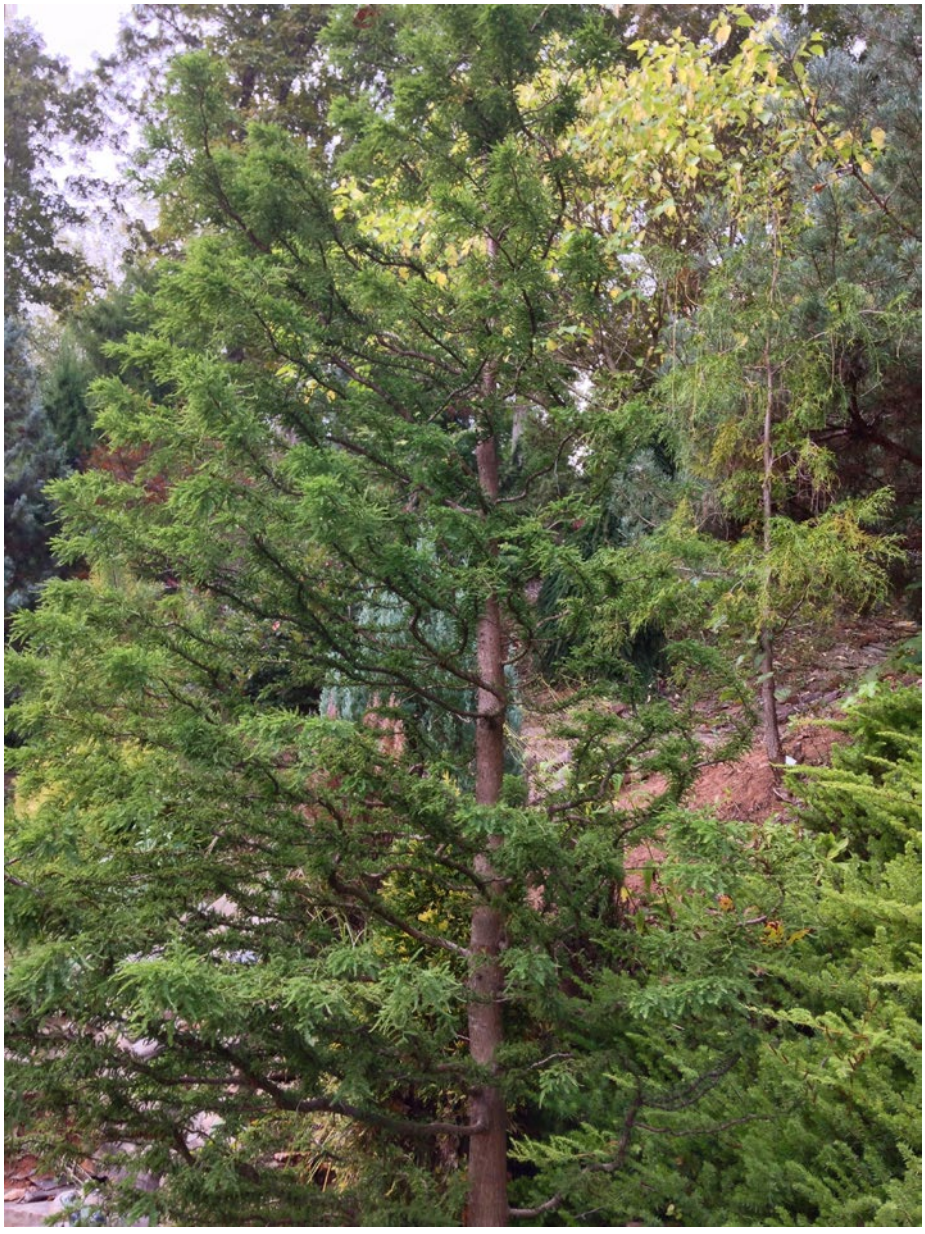
The basics of discovering conifer cultivars are simple. There are three main ways in which new cultivars are found: they're found as seedling variations, as sports, or as witch's brooms.

A seedling variation is just a plant that has grown from seed and exhibits different characteristics from the parent tree. It could weep, or have a different color, or grow slowly or ultra-narrow.

A sport is a section of a tree that exhibits different characteristics. Variegated cultivars are often discovered as sports of parent trees.

A witch's broom is a particular kind of sport denoted by a tighter cluster of growth in a section of the tree. Witch's brooms often become the little globose (round) dwarf conifer cultivars we see in nurseries.

Finding any of these variations is as simple as searching trees and looking. But be aware that there are often trees that look different that aren't different for genetic reasons. For instance, you might have a tree that's infested by insects,



Taxodium distichum 'Twisted Logic' introduced by Tom Cox (Cox Arboretum). Photo by Neil Fusillo

Pinus virginiana 'Fluffy Cloud' witch's broom. On the right is Sarah Montgomery holding the witch's broom. Photo by Neil Fusillo

causing it to grow in a different way. Or, you might have one that's been cut or broken by falling branches or other trees, causing it to grow differently because of damage. You might see discoloration from disease or fungus. All of these things could lead to trees that look different, but aren't able to become new cultivars.

Once you find something genuinely, genetically different, however, you can see about cloning it into a new plant. If you have no experience with grafting or propagating conifers, I would recommend not experimenting on your own with your newly discovered gem. Even for the experts, there's always a chance of failure, but at least they have the experience and the hardware set up to give it a better chance of survival. Since grafting is generally done in the dead of winter, I recommend spending the warmer months lining up nurseries or plantsmen who can help you.

When Sarah Montgomery recently discovered a *Pinus virginiana* witch's broom in Alpharetta, GA, she came to me for help both with finding someone to propagate it, and with collecting. We spent the rest of the year, nervously watching it, hoping nothing would happen to the witch's broom before we got a chance to collect it the following winter. During that time, we rounded up a host of great people to clone her discovery and get it out into the market. All the grafters we talked to were incredibly helpful, and happy to tell us how to get these scions for grafting, and when they needed them. Collecting for us was just a matter of a tall enough ladder and a long enough pole pruner to grab a branch or two. Sometimes, it takes more drastic measures, as brooms can often be high up in the upper canopy. Some collectors have been known to shoot them down with shotguns. Whichever route you wind up taking, be sure you do it safely, and with the permission of the property owner.

Whether you opt to collect and propagate the discoveries you make or just leave them for others to enjoy, it's always a good idea to take some great pictures and share what you've found with others. There are Facebook pages devoted to witch's brooms, and plant propagation. And, of course, the ACS has its own forum pages with eager eyes always ready to see pictures of the new and unique. Discovering new cultivars can be a great pastime, and fun for conifer lovers of all ages.

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Pinus thunbergii 'Nishiki Eechee' bonsai by Peter C. Jones. Photo by Edward S. Jones. Watch the Fall *CQ* for the full article.